STRUCTURE SEARCH

```
=> d his l73

     (FILE 'HCAPLUS' ENTERED AT 14:31:46 ON 09 JUN 2009)
L73          35 S L70 AND (L71 OR L72)
               SAV TEMP L73 NGU707HCP/A

=> d que stat l73
L3             STR
```


```
NODE ATTRIBUTES:
DEFAULT MLEVEL IS ATOM
GGCAT   IS UNS  AT   1
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS   2

STEREO ATTRIBUTES: NONE
L4             SCR 2043
L12            STR
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```
NODE ATTRIBUTES:
DEFAULT MLEVEL IS ATOM
GGCAT   IS UNS  AT   1
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS   2

STEREO ATTRIBUTES: NONE
L18      288112 SEA FILE=REGISTRY SSS FUL L3 AND L12 AND L4
L24            STR
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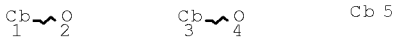


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NODE ATTRIBUTES:
DEFAULT MLEVEL IS ATOM
GGCAT   IS UNS  AT   1
GGCAT   IS UNS  AT   3
GGCAT   IS UNS  AT   5
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS   5

STEREO ATTRIBUTES: NONE
L26       65587 SEA FILE=REGISTRY SUB=L18 SSS FUL L24
L32       68489 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  POLYETHERS/CT
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L35	44054	SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L26
L36	17946	SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L32 AND L35
L37	10083	SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L32(L)AROM?
L38	5617	SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L37 AND L35
L39	10789	SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON AROM?(2A)(POLY ETHER? OR POLY(A)ETHER?)
L40	5775	SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L39 AND L35
L41	48271	SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON (ION OR CATION OR ANION)(2A)?CONDUCT?
L42	37	SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L40 AND L41
L43	186	SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L35 AND L41
L44	51500	SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON ULTRAHIGH OR ULTRA(A)HIGH
L45	1	SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L43 AND L44
L46	1910	SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON ULTRALARGE OR ULTRA(A)LARGE
L47	16	SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L40 AND (L44 OR L46)
L48	0	SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L43 AND L46
L49	1	SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L42 AND (L44 OR L46)
L50	6140	SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L38 OR L40
L51	93478	SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON (HIGH OR LARGE)(2A)(MW OR MOLECULAR WEIGHT) OR ((NUMBER(A)AVERAGE)(2A)(MW OR MOLECULAR)(A)(WEIGHT OR WT)) OR NAMW
L52	295	SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L50 AND (L44 OR L46 OR L51)
L53	1	SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L52 AND L41
L54	52	SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L42 OR L45 OR (L47 OR L48 OR L49) OR L53
L55	222525	SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON L18 NOT L26
L56	101356	SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON L55 AND 1-3/NR
L57	121169	SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON L55 NOT L56
L58	23146	SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L36 OR L39
L59	11816	SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L58 AND (L56 OR L57)
L60	100	SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L59 AND L41
L61	2	SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L60 AND (L44 OR L46 OR L51)
L62	531	SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L59 AND (L44 OR L46 OR L51)
L63	68	SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L62 AND ?CONDUCT?
L64	31	SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L63 AND (ION OR CATION OR ANION OR ELECTRON OR HOLE OR CHARGE)
L65	82	SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L54 OR L61 OR L64
L66	359566	SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON "IONIC CONDUCTIVITY"+MAX/CT
L67	26	SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L62 AND L66
L68	100405	SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON "IONIC CONDUCTORS"+MAX/CT
L69	22	SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L62 AND L68
L70	89	SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L65 OR L67 OR L69
L71		QUE SPE=ON ABB=ON PLU=ON PY=<2003 NOT P/DT
L72		QUE SPE=ON ABB=ON PLU=ON (PY=<2003 OR PRY=<2003 OR AY=<2003 OR MY=<2003 OR REVIEW/DT) AND P/DT
L73	35	SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L70 AND (L71 OR L72)

STRUCTURE SEARCH RESULTS

=> d l73 1-35 ibib ed abs hitstr hitind

L73 ANSWER 1 OF 35 HCAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 2008:337358 HCAPLUS Full-text
DOCUMENT NUMBER: 148:356260
TITLE: Crosslinkable aromatic resin having protonic acid group, and ion conductive polymer membrane, binder and fuel cell using the resin
INVENTOR(S): Ishikawa, Junichi; Kuroki, Takashi; Fujiyama, Satoko; Omi, Takehiko; Nakata, Tomoyuki; Okawa, Yuichi; Miyazaki, Kazuhisa; Fujii, Shigeharu; Tamai, Shoji
PATENT ASSIGNEE(S): Mitsui Chemicals, Inc., Japan
SOURCE: U.S., 55pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

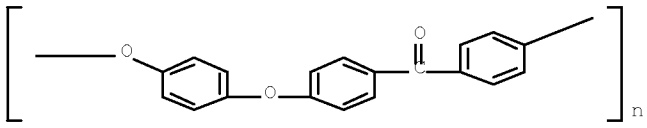
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 7345135	B2	20080318	US 2004-820842 <--	2004 0409
US 20040191602	A1	20040930		
WO 2003033566	A1	20030424	WO 2002-JP10536 <--	2002 1010
W: CA, CN, IN, JP, KR, US RW: DE, FR, GB, IT, SE				
PRIORITY APPLN. INFO.:			JP 2001-312799 A <--	2001 1010
			JP 2002-182252 A <--	2002 0621
			WO 2002-JP10536 A2 <--	2002 1010

ED Entered STN: 19 Mar 2008
AB A crosslinkable aromatic resin(such as polyethers, polyamides, polyimides, polyamideimides, polyazoles) having a protonic acid group and a crosslinkable group is prepared for suitable for electrolytic membranes and binders used in fuel cells. The crosslinking is not derived from the protonic acid group and the resin can form a polymer network without any elimination component and exhibits excellent ion conductivity, heat resistance, water resistance, adhesion property and low methanol permeability. Preferably, the crosslinkable group is composed of a C1-10 group directly bonded to the aromatic ring and/or an alkylene group having 1-3 carbon atoms in the main chain in which at least one carbon atom directly bonded to the aromatic ring bonds to hydrogen, and a carbonyl group, or a carbon-carbon double bond or triple bond. Thus, a polyether-polysulfone was prepared from disodium 3,3'-disulfonate-4,4'-difluorobenzophenone, 4,4'-difluorobenzophenone and 2,2-bis(3,5-dimethyl-4-hydroxyphenyl)propane.
IT 31694-16-3DP, PEEK450P, sulfonated
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(PEEK450P; crosslinkable aromatic resin having protonic acid group
for ion conductive polymer membrane used
for binder and fuel cell)

RN 31694-16-3 HCAPLUS

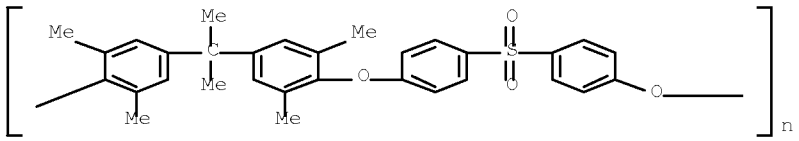
CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene)
(CA INDEX NAME)



IT 32034-67-6P 41205-96-3P 87781-17-7P
342047-79-4DP, reaction products with 3-ethynylphenol
342047-79-4P 515144-31-7P 515144-45-3DP
, sulfonated 515144-45-3P 515144-55-5P
515144-59-9P 515811-98-0P 1012792-05-0P
1012792-07-2P 1012792-22-1DP, sulfonated
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical
or engineered material use); PREP (Preparation); USES (Uses)
(crosslinkable aromatic resin having protonic acid group
for ion conductive polymer membrane used
for binder and fuel cell)

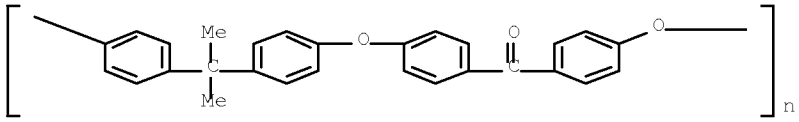
RN 32034-67-6 HCAPLUS

CN Poly[oxy-1,4-phenylenesulfonyl-1,4-phenyleneoxy(2,6-dimethyl-1,4-
phenylene)(1-methylethylidene)(3,5-dimethyl-1,4-phenylene)] (CA
INDEX NAME)



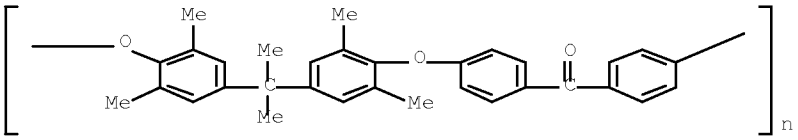
RN 41205-96-3 HCAPLUS

CN Poly[oxy-1,4-phenylenecarbonyl-1,4-phenyleneoxy-1,4-phenylene(1-
methylethylidene)-1,4-phenylene] (CA INDEX NAME)

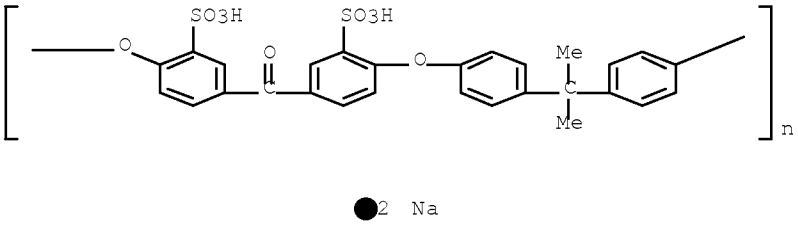


RN 87781-17-7 HCAPLUS

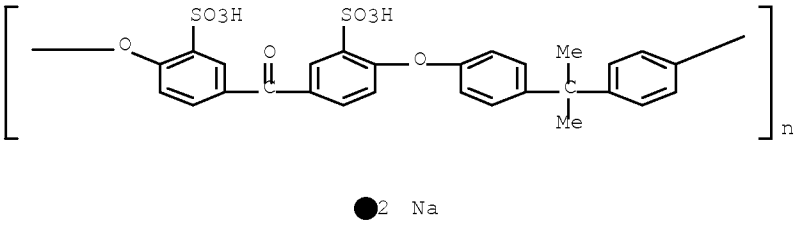
CN Poly[oxy(2,6-dimethyl-1,4-phenylene)(1-methylethylidene)(3,5-
dimethyl-1,4-phenylene)oxy-1,4-phenylenecarbonyl-1,4-phenylene]
(CA INDEX NAME)



RN 342047-79-4 HCAPLUS
CN Poly[oxy(2-sulfo-1,4-phenylene)carbonyl(3-sulfo-1,4-phenylene)oxy-1,4-phenylene(1-methylethylidene)-1,4-phenylene sodium salt (1:2)] (CA INDEX NAME)



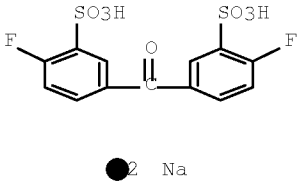
RN 342047-79-4 HCAPLUS
CN Poly[oxy(2-sulfo-1,4-phenylene)carbonyl(3-sulfo-1,4-phenylene)oxy-1,4-phenylene(1-methylethylidene)-1,4-phenylene sodium salt (1:2)] (CA INDEX NAME)



RN 515144-31-7 HCAPLUS
CN Benzenesulfonic acid, 3,3'-carbonylbis[6-fluoro-, sodium salt (1:2), polymer with bis(4-fluorophenyl)methanone and 4,4'-[1,4-phenylenebis(1-methylethylidene)]bis[2,6-dimethylphenol] (CA INDEX NAME)

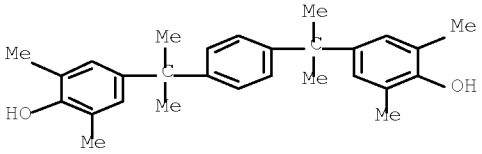
CM 1

CRN 210531-45-6
CMF C13 H8 F2 O7 S2 . 2 Na



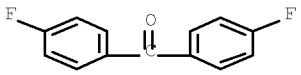
CM 2

CRN 36395-57-0
CMF C28 H34 O2

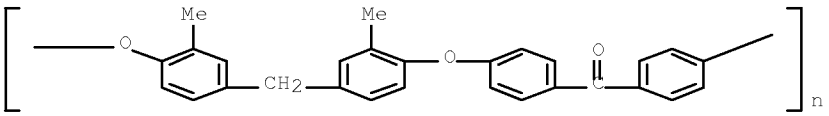


CM 3

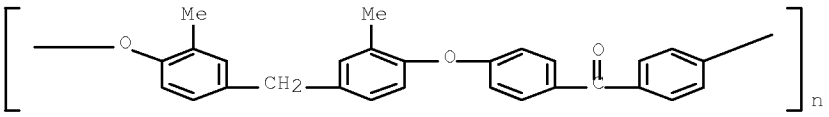
CRN 345-92-6
CMF C13 H8 F2 O



RN 515144-45-3 HCAPLUS
CN Poly[oxy(2-methyl-1,4-phenylene)methylene(3-methyl-1,4-phenylene)oxy-1,4-phenylenecarbonyl-1,4-phenylene] (CA INDEX NAME)

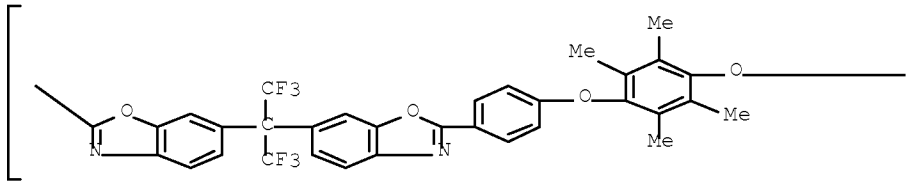


RN 515144-45-3 HCAPLUS
CN Poly[oxy(2-methyl-1,4-phenylene)methylene(3-methyl-1,4-phenylene)oxy-1,4-phenylenecarbonyl-1,4-phenylene] (CA INDEX NAME)

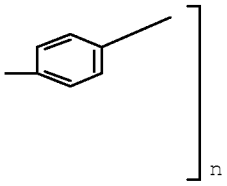


RN 515144-55-5 HCAPLUS
CN Poly[2,6-benzoxazolediyl[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]-6,2-benzoxazolediyl-1,4-phenyleneoxy(2,3,5,6-tetramethyl-1,4-phenylene)oxy-1,4-phenylene] (CA INDEX NAME)

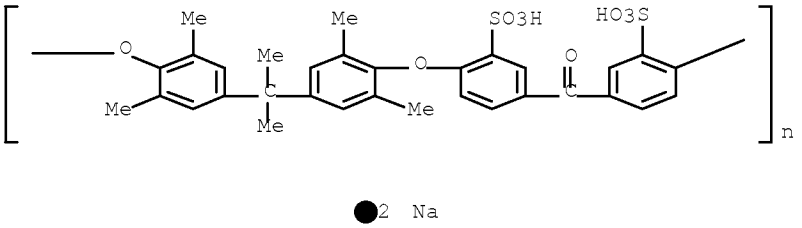
PAGE 1-A



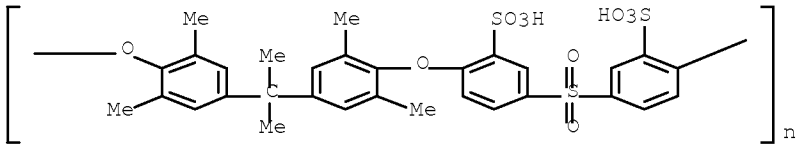
PAGE 1-B



RN 515144-59-9 HCAPLUS
CN Poly[oxy(2,6-dimethyl-1,4-phenylene)(1-methylethylidene)(3,5-dimethyl-1,4-phenylene)oxy(2-sulfo-1,4-phenylene)carbonyl(3-sulfo-1,4-phenylene) sodium salt (1:2)] (CA INDEX NAME)



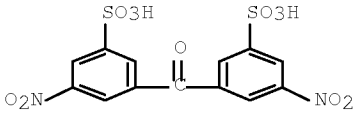
RN 515811-98-0 HCAPLUS
CN Poly[oxy(2,6-dimethyl-1,4-phenylene)(1-methylethylidene)(3,5-dimethyl-1,4-phenylene)oxy(2-sulfo-1,4-phenylene)sulfonyl(3-sulfo-1,4-phenylene) sodium salt (1:2)] (CA INDEX NAME)



RN 1012792-05-0 HCAPLUS
CN Benzenesulfonic acid, 3,3'-carbonylbis[5-nitro-, sodium salt (1:2), polymer with bis(4-nitrophenyl)methanone and 4,4'-[1,4-phenylenebis(1-methylethylidene)]bis[2,6-dimethylphenol] (CA INDEX NAME)

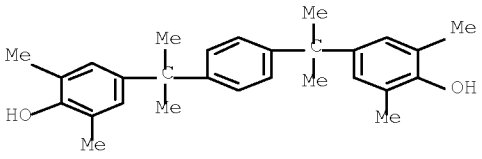
CM 1

CRN 1012792-04-9
CMF C13 H8 N2 O11 S2 . 2 Na



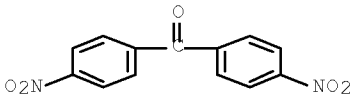
CM 2

CRN 36395-57-0
CMF C28 H34 O2



CM 3

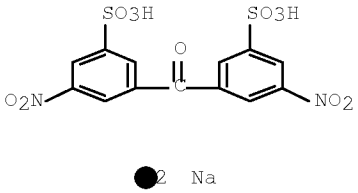
CRN 1033-26-7
CMF C13 H8 N2 O5



RN 1012792-07-2 HCAPLUS
CN Benzenesulfonic acid, 3,3'-carbonylbis[5-nitro-, sodium salt (1:2), polymer with bis(4-fluorophenyl)methanone and 4,4'-[1,4-phenylenebis(1-methylethylidene)]bis[2,6-dimethylphenol] (CA INDEX NAME)

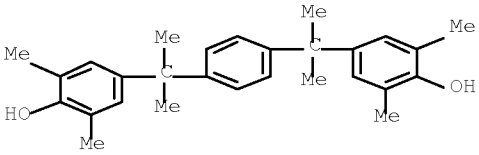
CM 1

CRN 1012792-04-9
CMF C13 H8 N2 O11 S2 . 2 Na



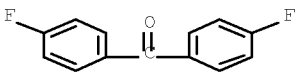
CM 2

CRN 36395-57-0
CMF C28 H34 O2



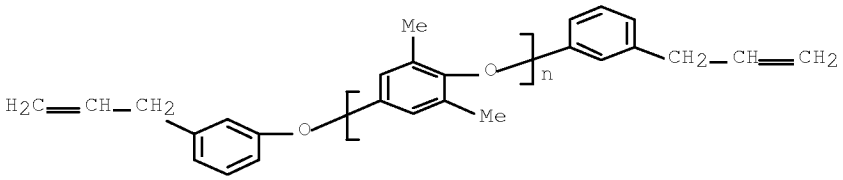
CM 3

CRN 345-92-6
CMF C13 H8 F2 O



RN 1012792-22-1 HCAPLUS
CN Poly[oxy(2,6-dimethyl-1,4-phenylene)],

α-[3-(2-propen-1-yl)phenyl]-ω-[3-(2-propen-1-yl)phenoxy]- (CA INDEX NAME)



INCL 528220000; 525330900; 525331200; 525328600; 429030000; 429034000; 429042000; 429310000; 429316000; 429317000
CC 35-5 (Chemistry of Synthetic High Polymers)
ST arom polyether polyamide polyimide polyamideimide polyazole polysulfone; conductive polymer fuel cell membrane crosslinking; disodium disulfonatedifluorobenzophenone difluorobenzophenone bisdimethylhydroxyphenylpropane copolymer prepn
IT Anodes
Cathodes
Conducting polymers
Electrodes
Fuel cell separators
Sulfonation
(crosslinkable aromatic resin having protonic acid group for ion conductive polymer membrane used for binder and fuel cell)
IT Polyamides, preparation
Polybenzoxazoles
Polyimides, preparation
Polyoxyphenylenes
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(crosslinkable aromatic resin having protonic acid group for ion conductive polymer membrane used for binder and fuel cell)
IT Crosslinking
(photochem.; crosslinkable aromatic resin having protonic acid group for ion conductive polymer membrane used for binder and fuel cell)
IT Polyketones
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyamic acid-; crosslinkable aromatic resin having protonic acid group for ion conductive polymer membrane used for binder and fuel cell)
IT Polysulfones, preparation
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyamic acid-polyketone-; crosslinkable aromatic resin having protonic acid group for ion conductive polymer membrane used for binder and fuel cell)
IT Polyketones
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyamic acid-polysulfone-; crosslinkable aromatic resin having protonic acid group for ion conductive polymer membrane used for binder and fuel cell)
IT Polyimides, preparation
Polyketones
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical

or engineered material use); PREP (Preparation); USES (Uses)
(polyamide-; crosslinkable aromatic resin having protonic acid group for ion conductive polymer membrane used for binder and fuel cell)

IT Polysulfones, preparation
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyamide-polyester-; crosslinkable aromatic resin having protonic acid group for ion conductive polymer membrane used for binder and fuel cell)

IT Polysulfones, preparation
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyamide-polyketone-; crosslinkable aromatic resin having protonic acid group for ion conductive polymer membrane used for binder and fuel cell)

IT Polyesters, preparation
Polyketones
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyamide-polysulfone-; crosslinkable aromatic resin having protonic acid group for ion conductive polymer membrane used for binder and fuel cell)

IT Polyethers, preparation
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polybenzoxazole-, fluorine-containing; crosslinkable aromatic resin having protonic acid group for ion conductive polymer membrane used for binder and fuel cell)

IT Fluoropolymers, preparation
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polybenzoxazole-polyether-; crosslinkable aromatic resin having protonic acid group for ion conductive polymer membrane used for binder and fuel cell)

IT Polyamides, preparation
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyester-polysulfone-; crosslinkable aromatic resin having protonic acid group for ion conductive polymer membrane used for binder and fuel cell)

IT Polybenzoxazoles
Polyketones
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyether-, fluorine-containing; crosslinkable aromatic resin having protonic acid group for ion conductive polymer membrane used for binder and fuel cell)

IT Polyketones
Polyphenyls
Polysulfides
Polysulfones, preparation
Polysulfones, preparation
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyether-; crosslinkable aromatic resin having protonic acid group for ion conductive polymer membrane used for binder and fuel cell)

IT Polysulfones, preparation
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyether-polyketone-, fluorine-containing; crosslinkable aromatic resin having protonic acid group for ion conductive polymer membrane used for binder and fuel cell)

IT Fluoropolymers, preparation

Polysulfones, preparation
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyether-polyketone-; crosslinkable aromatic resin having protonic acid group for ion conductive polymer membrane used for binder and fuel cell)

IT Fluoropolymers, preparation
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyether-polyketone-polysulfone-; crosslinkable aromatic resin having protonic acid group for ion conductive polymer membrane used for binder and fuel cell)

IT Polyketones
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyether-polysulfone-, fluorine-containing; crosslinkable aromatic resin having protonic acid group for ion conductive polymer membrane used for binder and fuel cell)

IT Polyketones
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyether-polysulfone-; crosslinkable arom. resin having protonic acid group for ion conductive polymer membrane used for binder and fuel cell)

IT Polyamides, preparation
Polyketones
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyimide-; crosslinkable aromatic resin having protonic acid group for ion conductive polymer membrane used for binder and fuel cell)

IT Polysulfones, preparation
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyimide-polyketone-; crosslinkable aromatic resin having protonic acid group for ion conductive polymer membrane used for binder and fuel cell)

IT Polyketones
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyimide-polysulfone-; crosslinkable aromatic resin having protonic acid group for ion conductive polymer membrane used for binder and fuel cell)

IT Polyethers, preparation
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyketone-, fluorine-containing; crosslinkable aromatic resin having protonic acid group for ion conductive polymer membrane used for binder and fuel cell)

IT Polyamic acids
Polyamides, preparation
Polyethers, preparation
Polyimides, preparation
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyketone-; crosslinkable aromatic resin having protonic acid group for ion conductive polymer membrane used for binder and fuel cell)

IT Polyethers, preparation
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyketone-polysulfone-, fluorine-containing; crosslinkable aromatic resin having protonic acid group for ion conductive polymer membrane used for binder and fuel

cell)
IT Polyamic acids
Polyamides, preparation
Polyethers, preparation
Polyimides, preparation
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyketone-polysulfone-; crosslinkable aromatic resin having protonic acid group for ion conductive polymer membrane used for binder and fuel cell)
IT Polyphosphoric acids
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polymers with 3,3'-diamino-4,4-bisphenol dihydrochloride and 4,4'-benzophenonedicarboxylic acid, sulfonated; crosslinkable aromatic resin having protonic acid group for ion conductive polymer membrane used for binder and fuel cell)
IT Polyethers, preparation
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyphenyl-; crosslinkable aromatic resin having protonic acid group for ion conductive polymer membrane used for binder and fuel cell)
IT Polyethers, preparation
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polysulfide-; crosslinkable aromatic resin having protonic acid group for ion conductive polymer membrane used for binder and fuel cell)
IT Polyethers, preparation
Polyethers, preparation
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polysulfone-; crosslinkable aromatic resin having protonic acid group for ion conductive polymer membrane used for binder and fuel cell)
IT Crosslinking
(radiochem.; crosslinkable aromatic resin having protonic acid group for ion conductive polymer membrane used for binder and fuel cell)
IT Crosslinking
(thermal; crosslinkable aromatic resin having protonic acid group for ion conductive polymer membrane used for binder and fuel cell)
IT 1012870-75-5P
RL: IMF (Industrial manufacture); PRP (Properties); RCT (Reactant); TEM (Technical or engineered material use); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
((C29H18N2O13S2)n.2Na; crosslinkable aromatic resin having protonic acid group for ion conductive polymer membrane used for binder and fuel cell)
IT 10401-11-3DP, reaction products with bisphenol A-dichlorodiphenylsulfone-disodium 3,3'-disulfonate-4,4'-dichlorodiphenyl sulfone copolymer
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(Bisphenol A-dichlorodiphenylsulfone-disodium 3,3'-disulfonate-4,4'-dichlorodiphenyl sulfone copolymer; crosslinkable aromatic resin having protonic acid group for ion conductive polymer membrane used for binder and fuel cell)
IT 31694-16-3DP, PEEK450P, sulfonated
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(PEEK450P; crosslinkable aromatic resin having protonic acid group for ion conductive polymer membrane used

for binder and fuel cell)

IT 964-68-1DP, 4,4'-Benzophenonedicarboxylic acid, polymers with 3,3'-diamino-4,4-bisphenol dihydrochloride and polyphosphoric acid, sulfonated
RL: IMF (Industrial manufacture); PRP (Properties); RCT (Reactant); TEM (Technical or engineered material use); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
(Polyphosphoric acid; crosslinkable aromatic resin having protonic acid group for ion conductive polymer membrane used for binder and fuel cell)

IT 1592-35-4DP, polymers with 4,4'-benzophenonedicarboxylic acid and polyphosphoric acid, sulfonated
RL: IMF (Industrial manufacture); PRP (Properties); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(crosslinkable aromatic resin having protonic acid group for ion conductive polymer membrane used for binder and fuel cell)

IT 25134-01-4P, Poly(2,6-dimethyl-1,4-phenylene oxide) 127546-84-3P
RL: IMF (Industrial manufacture); PRP (Properties); RCT (Reactant); TEM (Technical or engineered material use); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
(crosslinkable aromatic resin having protonic acid group for ion conductive polymer membrane used for binder and fuel cell)

IT 1076-99-9DP, 4-Allylbenzoic acid, reaction products with polyether-polyketone 1745-89-7DP, reaction products wit fluoropolymer-polyether-polyketone 10601-99-7DP, 3-Ethynylbenzoic acid, reaction products wit fluoropolymer-polyether-polyketone 24938-67-8P, Poly(2,6-dimethyl-1,4-phenylene oxide) 25897-65-8P 28825-50-5P 29658-28-4P 32034-67-6P 39342-71-7DP, Poly(dimethylphenol), reaction products with 2-allylphenol, sulfonated 41205-96-3P 54571-77-6P 87089-64-3P 87781-17-7P 87792-34-5P 127546-84-3DP, sulfonated 127583-87-3P 127669-56-1P 146673-88-3DP, reaction products with 3-ethynylphenol 146673-88-3DP, reaction products with 4-ethynylfluorobenzene 267877-35-0DP, reaction products with 3-ethynylphenol 342047-78-3DP, reaction products with 3-ethynylphenol 342047-78-3P 342047-79-4DP, reaction products with 3-ethynylphenol 342047-79-4P 515144-26-0P 515144-27-1P 515144-28-2P 515144-29-3P 515144-30-6P 515144-31-7P 515144-32-8P 515144-34-0P 515144-35-1P 515144-36-2P 515144-37-3P 515144-38-4P 515144-41-9DP, sulfonated 515144-42-0P 515144-44-2DP, sulfonated 515144-44-2P 515144-45-3DP, sulfonated 515144-45-3P 515144-48-6P 515144-49-7P 515144-50-0P 515144-51-1DP, reaction products with 3-ethynylbenzoic acid 515144-51-1P 515144-53-3P 515144-54-4P 515144-55-5P 515144-56-6P 515144-57-7P 515144-58-8P 515144-59-9P 515144-60-2P 515144-61-3P 515144-62-4P 515144-64-6P 515144-65-7P 515144-66-8DP, reaction products with 3-ethynylphenol 515144-67-9P 515144-68-0DP, reaction products with 3-ethynylphenol 515144-69-1DP, reaction products with 3-ethynylphenol 515144-70-4DP, reaction products with 3-ethynylphenol 515144-75-9DP, reaction products with 3-ethynylphenol 515811-98-0P 1012791-98-8P 1012791-99-9P 1012792-00-5P 1012792-01-6P 1012792-05-0P 1012792-07-2P 1012792-14-1DP, sulfonated 1012792-14-1P 1012792-15-2P 1012792-18-5P 1012792-19-6P 1012792-20-9P 1012792-22-1DP, sulfonated 1012870-75-5DP, sulfonated
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(crosslinkable aromatic resin having protonic acid group for ion conductive polymer membrane used for binder and fuel cell)

IT 51698-33-0P 210531-45-6P, Disodium

3,3'-disulfonate-4,4'-difluorobenzophenone 515144-46-4P
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(crosslinkable aromatic resin having protonic acid group for ion conductive polymer membrane used for binder and fuel cell)

IT 50-00-0, Formaldehyde, reactions 80-05-7, 2,2-Bis(4-hydroxy-phenyl)-propane, reactions 80-07-9, 4,4'-Dichlorodiphenylsulfone 345-92-6, 4,4'-Difluorobenzophenone 598-03-8 766-98-3 1076-99-9, 4-Allylbenzoic acid 1745-89-7 7647-14-5, Sodium chloride, reactions 7757-83-7 10401-11-3, 3-Ethynylphenol 10601-99-7, 3-Ethynylbenzoic acid
RL: RCT (Reactant); RACT (Reactant or reagent)
(crosslinkable aromatic resin having protonic acid group for ion conductive polymer membrane used for binder and fuel cell)

IT 7664-93-9, Sulfuric acid, reactions 7790-94-5, Chlorosulfuric acid
RL: RGT (Reagent); RACT (Reactant or reagent)
(crosslinkable aromatic resin having protonic acid group for ion conductive polymer membrane used for binder and fuel cell)

IT 210531-46-7P
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(crosslinked; crosslinkable aromatic resin having protonic acid group for ion conductive polymer membrane used for binder and fuel cell)

IT 515144-39-5P 515144-40-8P
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(optionally crosslinked; crosslinkable aromatic resin having protonic acid group for ion conductive polymer membrane used for binder and fuel cell)

IT 515144-71-5P
RL: IMF (Industrial manufacture); PRP (Properties); RCT (Reactant); TEM (Technical or engineered material use); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
(polyamic acid; crosslinkable aromatic resin having protonic acid group for ion conductive polymer membrane used for binder and fuel cell)

IT 515144-71-5DP, reaction products with 3-ethynylphenol
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyamic acid; crosslinkable aromatic resin having protonic acid group for ion conductive polymer membrane used for binder and fuel cell)

IT 515144-24-8P
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(uncrosslinked and crosslinked; crosslinkable aromatic resin having protonic acid group for ion conductive polymer membrane used for binder and fuel cell)

REFERENCE COUNT: 45 THERE ARE 45 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L73 ANSWER 2 OF 35 HCAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 2005:638265 HCAPLUS Full-text
DOCUMENT NUMBER: 143:156320
TITLE: Membrane-electrode assemblies showing good low-temperature performance for solid polymer electrolyte fuel cells, and vehicles and electric apparatus using them
INVENTOR(S): Kanaoka, Osayuki; Mitsuda, Naoki; Hama, Yuichiro; Takahashi, Ryoichiro; Soma, Hiroshi; Iguchi, Masaru; Asano, Yoichi

PATENT ASSIGNEE(S): Honda Motor Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 38 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005197236	A	20050721	JP 2004-356428	2004 1209 <--
US 20050186460	A1	20050825	US 2004-6617	2004 1208 <--
EP 1603182	A1	20051207	EP 2004-29067	2004 1208 <--
EP 1603182	B1	20080910		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK, BA, HR, IS, YU				

PRIORITY APPLN. INFO.: JP 2003-410958 A 2003 1209 <--

ED Entered STN: 22 Jul 2005

AB The assemblies have polymeric electrolyte membranes comprising segments A with ion conductive components and segments B without ion conductive components, where the content of water having m.p. from -30° to 0° is 0.01-3.0 g/1 g-polymer absorbed by the membranes after soaking in water at 90° for 30. Preferably, the segments A are SO3H-containing polyarylenes, and the segments B are polyarylenes. The assemblies suppress drying under low humidity condition or freezing at low temperature, resulting in the fuel cells showing good start up performance.

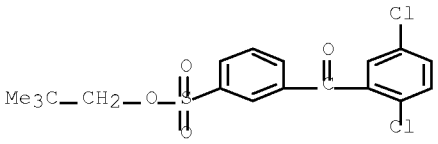
IT 849729-08-4DP, 9,9-Bis(4-hydroxyphenyl)fluorene-2,6-dichlorobenzonitrile-neopentyl 3-(2,5-dichlorobenzoyl)benzenesulfonate block copolymer, hydrolyzed 849729-10-8DP, 9,9-Bis(4-hydroxyphenyl)fluorene-2,2-Bis(4-hydroxyphenyl)-1,1,1,3,3,3-hexafluoropropane-2,6-dichlorobenzonitrile-neopentyl 3-(2,5-dichlorobenzoyl)benzenesulfonate block copolymer, hydrolyzed
RL: DEV (Device component use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)
(membrane-electrode assemblies showing good low-temperature performance for solid polymer electrolyte fuel cells for vehicles and elec. apparatus)

RN 849729-08-4 HCAPLUS

CN Benzenesulfonic acid, 3-(2,5-dichlorobenzoyl)-, 2,2-dimethylpropyl ester, polymer with 2,6-dichlorobenzonitrile and 4,4'-(9H-fluoren-9-ylidene)bis[phenol], block (9CI) (CA INDEX NAME)

CM 1

CRN 847972-43-4
CMF C18 H18 Cl2 O4 S



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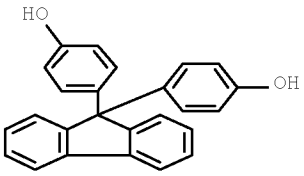
CRN 3236-71-3
CMF C25 H18 O2



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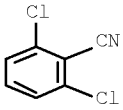
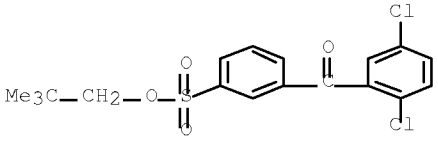
CRN 1194-65-6
CMF C7 H3 Cl2 N



RN 849729-10-8 HCAPLUS
CN Benzenesulfonic acid, 3-(2,5-dichlorobenzoyl)-, 2,2-dimethylpropyl ester, polymer with 2,6-dichlorobenzonitrile, 4,4'-(9H-fluoren-9-ylidene)bis[phenol] and 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol], block (9CI) (CA INDEX NAME)

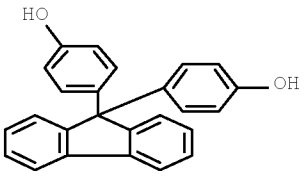
CM 1

CRN 847972-43-4
CMF C18 H18 Cl2 O4 S



CM 2

CRN 3236-71-3
CMF C25 H18 O2



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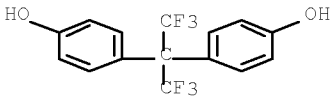
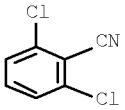
CRN 1478-61-1
CMF C15 H10 F6 O2



CM 4

CRN 1194-65-6
CMF C7 H3 Cl2 N



IC ICM H01M008-02
ICS H01M008-10
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38, 76
IT Polyethers, uses
RL: DEV (Device component use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)
(aromatic, cardo, sulfo-containing, block; membrane-electrode assemblies showing good low-temperature performance for solid polymer electrolyte fuel cells for vehicles and elec. apparatus)
IT Cardo polymers
RL: DEV (Device component use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)
(polyethers, aromatic, sulfo-containing, block; membrane-electrode assemblies showing good low-temperature performance for solid polymer electrolyte fuel cells for vehicles and elec. apparatus)
IT 849729-07-3DP, 2,2-Bis(4-hydroxyphenyl)-1,1,1,3,3,3-

hexafluoropropane-2,6-dichlorobenzonitrile-neopentyl 3-(2,5-dichlorobenzoyl)benzenesulfonate block copolymer, hydrolyzed 849729-08-4DP, 9,9-Bis(4-hydroxyphenyl)fluorene-2,6-dichlorobenzonitrile-neopentyl 3-(2,5-dichlorobenzoyl)benzenesulfonate block copolymer, hydrolyzed 849729-10-8DP, 9,9-Bis(4-hydroxyphenyl)fluorene-2,2-Bis(4-hydroxyphenyl)-1,1,1,3,3,3-hexafluoropropane-2,6-dichlorobenzonitrile-neopentyl 3-(2,5-dichlorobenzoyl)benzenesulfonate block copolymer, hydrolyzed 849729-12-0DP, 4,4'-Biphenol-2,2-bis(4-hydroxyphenyl)-1,1,1,3,3,3-hexafluoropropane-2,6-dichlorobenzonitrile-neopentyl 3-(2,5-dichlorobenzoyl)benzenesulfonate block copolymer, hydrolyzed 852156-73-1DP, hydrolyzed 860020-60-6DP, hydrolyzed
RL: DEV (Device component use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)
(membrane-electrode assemblies showing good low-temperature performance for solid polymer electrolyte fuel cells for vehicles and elec. apparatus)

L73 ANSWER 3 OF 35 HCAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 2005:182197 HCAPLUS Full-text
DOCUMENT NUMBER: 142:282832
TITLE: Composite electrolyte with crosslinking agents for fuel cells
INVENTOR(S): Kurano, Matthew Robert; Panambur, Gangadhar; Mada, Kannan Arunachala Nadar; Taft, Karl Milton
PATENT ASSIGNEE(S): Hoku Scientific, Inc., USA
SOURCE: U.S. Pat. Appl. Publ., 20 pp.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20050048341	A1	20050303	US 2003-653016	2003 0828
			<--	
US 6962959	B2	20051108		
WO 2005022669	A2	20050310	WO 2004-US27938	2004 0827
			<--	
WO 2005022669	A3	20050929		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
EP 1680821	A2	20060719	EP 2004-782421	2004 0827
			<--	
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, FI, RO, CY, TR, BG, CZ, EE, HU, PL, SK				

CN 1871736	A	20061129	CN 2004-80030780	2004 0827 <--
JP 2007504303	T	20070301	JP 2006-524890	2004 0827 <--
US 20050282053	A1	20051222	US 2005-192822	2005 0728 <--
KR 2007020167	A	20070220	KR 2006-704051	2006 0227 <--
PRIORITY APPLN. INFO.:			US 2003-653016	A 2003 0828 <--
			WO 2004-US27938	W 2004 0827

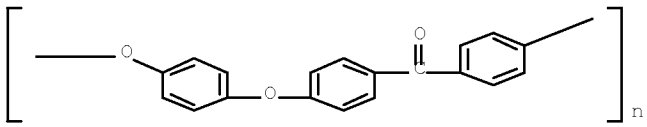
ED Entered STN: 04 Mar 2005

AB A covalent crosslinking of ion-conducting materials via sulfonic acid groups can be applied to various low cost electrolyte membrane base materials for improved fuel cell performance metrics relative to such base material. This proposed approach is due, in part, to the observation that many aromatic and aliphatic polymer materials have significant potential as proton exchange membranes if a modification can increase their phys. and chemical stabilities without sacrificing electrochem. performance or significantly increasing the material and production costs.

IT 31694-16-3DP, PEEK, sulfonated crosslinked copolymers
RL: CPS (Chemical process); DEV (Device component use); PEP (Physical, engineering or chemical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process); USES (Uses)
(crosslinked electrolyte; composite electrolyte with crosslinking agents for fuel cells)

RN 31694-16-3 HCAPLUS

CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)



IC ICM H01M008-10
ICS C08J005-22

INCL 429030000; X42-9 3.3; X52-1 2.7

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38

IT Polyketones
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(polyether-, aromatic; composite electrolyte with crosslinking agents for fuel cells)

IT Polyethers, processes
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(polyketone-, aromatic; composite electrolyte with

crosslinking agents for fuel cells)
IT 31694-16-3DP, PEEK, sulfonated crosslinked copolymers
RL: CPS (Chemical process); DEV (Device component use); PEP (Physical, engineering or chemical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process); USES (Uses)
(crosslinked electrolyte; composite electrolyte with crosslinking agents for fuel cells)
REFERENCE COUNT: 72 THERE ARE 72 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L73 ANSWER 4 OF 35 HCAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 2005:123117 HCAPLUS Full-text
DOCUMENT NUMBER: 142:222572
TITLE: Composite solid polymer electrolyte membranes for use in electrochemical applications
INVENTOR(S): Ofer, David; Nair, Bindu R.; Stoler, Emily J.; Kovar, Robert F.
PATENT ASSIGNEE(S): Foster-Miller Inc., USA
SOURCE: U.S. Pat. Appl. Publ., 32 pp., Cont.-in-part of U.S. Ser. No. 750,402.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 4
PATENT INFORMATION:

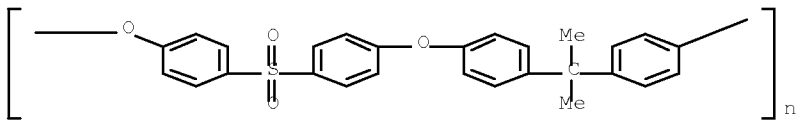
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20050031925	A1	20050210	US 2004-851478	2004 0522 <--
US 20020045085	A1	20020418	US 2000-750402	2000 1228 <--
US 7052793	B2	20060530		
WO 2006073474	A2	20060713	WO 2005-US18105	2005 0520
WO 2006073474	A3	20090416		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AP, EA, EP, OA

PRIORITY APPLN. INFO.:		
US 1999-261397	A3	1999 0303 <--
US 2000-750402	A2	2000 1228 <--
US 1997-57233P	P	1997 0829

<--
US 1999-261349 A3
1999
0303
<--
US 2004-851478 A
2004
0522

ED Entered STN: 13 Feb 2005
AB The present invention relates to composite solid polymer electrolyte membranes (SPEMs) which include a porous polymer substrate interpenetrated with a water soluble ion-conducting material. SPEMs of the present invention are useful in electrochem. applications, including fuel cells and electrodialysis.
IT 25135-51-7P
RL: SPN (Synthetic preparation); PREP (Preparation)
(composite solid polymer electrolyte membranes for use in electrochem. applications)
RN 25135-51-7 HCAPLUS
CN Poly[oxy-1,4-phenylenesulfonyl-1,4-phenyleneoxy-1,4-phenylene(1-methylethylidene)-1,4-phenylene] (CA INDEX NAME)



IC ICM H01M008-10
ICS H01M008-00; H01M006-18
INCL 429030000; 429033000; 429314000
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38, 72
IT Polymers, uses
RL: DEV (Device component use); USES (Uses)
(aromatic, ion conductive; composite solid polymer electrolyte membranes for use in electrochem. applications)
IT Polysulfones, uses
RL: DEV (Device component use); USES (Uses)
(polyether-, aromatic, sulfonated; composite solid polymer electrolyte membranes for use in electrochem. applications)
IT Polyethers, uses
RL: DEV (Device component use); USES (Uses)
(polysulfone-, aromatic, sulfonated; composite solid polymer electrolyte membranes for use in electrochem. applications)
IT 3177-22-8P 25135-51-7P 25667-42-9DP, Ultrason E, sulfonated 154281-38-6DP, Radel R, sulfonated 220998-11-8P
RL: SPN (Synthetic preparation); PREP (Preparation)
(composite solid polymer electrolyte membranes for use in electrochem. applications)

L73 ANSWER 5 OF 35 HCAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 2004:1128721 HCAPLUS Full-text
DOCUMENT NUMBER: 142:77601
TITLE: Proton conductive block-copolymers with good water resistance and low moisture absorption and low methanol penetration for proton conductive membranes
INVENTOR(S): Ishikawa, Junichi; Omi, Katsuhiko; Fujiyama,

Akiko; Toriida, Masahiro; Takeda, Koji;
Kuroki, Takashi; Tamai, Masashi
PATENT ASSIGNEE(S): Mitsui Chemicals Inc., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 19 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004359925	A	20041224	JP 2003-207951	20030819

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PRIORITY APPLN. INFO.: JP 2003-102682 A 20030407

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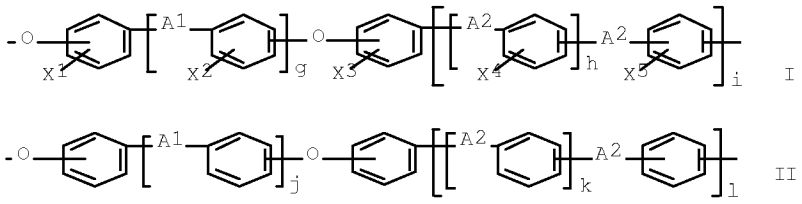
ED Entered STN: 24 Dec 2004

GI



I

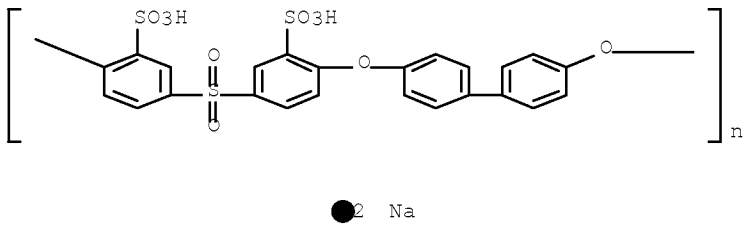
II

AB Title block copolymers comprise repeating unit blocks I and II, wherein X1, X2, X3, X4, X5 = H or protonic acid group (at least one of them is a protonic acid group); A1, A2, A3, A4 = direct bond, CH2, C(CH3)2, C(CF3)2, O, SO2, or CO; or g, h, i, j, k, l = 0 or 1; hydrogen of the aromatic ring = H, CmH2m+1, Cl, F, CF3, or CN; and m = 1-10 integer. Thus, 42.23 g 3,3'-carbonylbis(sodium 6-fluorobenzenesulfonate) and 25.63 g bis(3-methyl-4-hydroxyphenyl)methane were reacted at 141° for 8 h to give a copolymer with reduced viscosity 0.13 dL/g and glass transition temperature ≥250°, 21.82 g 4,4'-difluorobenzophenone and 25.63 g bis(3-methyl-4-hydroxyphenyl)methane were added therein and reacted at 157° for 8 h to give a block copolymer with reduced viscosity 1.21 dL/g and glass transition temperature 220°, 4 g of the resulting block copolymer was dissolved in 36 g DMSO/dimethylacetamide mixture, cast onto a glass substrate, dried at 200°, washed, and proton-exchanged with sulfuric acid to give a proton conductive film with ion exchange capacity 510 g/mol, moisture absorption 12%, ion conductivity 0.14 S/cm, and methanol permeability 0.4 μmol/cm2·minute.

IT 701915-80-2P 812669-47-9P 812677-79-5P
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(intermediate; preparation of proton conductive block-copolymers with good water resistance, low moisture absorption, and low methanol penetration for proton conductive membranes)

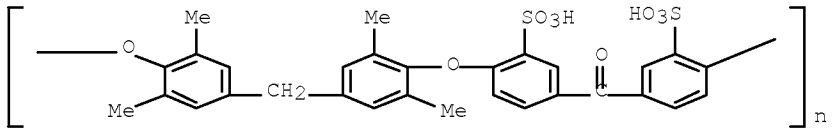
RN 701915-80-2 HCAPLUS

CN Poly[oxy[1,1'-biphenyl]-4,4'-diyloxy(2-sulfo-1,4-phenylene)sulfonyl(3-sulfo-1,4-phenylene) sodium salt (1:2)] (CA INDEX NAME)



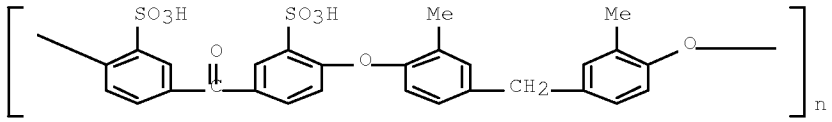
●2 Na

RN 812669-47-9 HCAPLUS
CN Poly[oxy(2,6-dimethyl-1,4-phenylene)methylene(3,5-dimethyl-1,4-phenylene)oxy(2-sulfo-1,4-phenylene)carbonyl(3-sulfo-1,4-phenylene) disodium salt] (9CI) (CA INDEX NAME)



●2 Na

RN 812677-79-5 HCAPLUS
CN Poly[oxy(2-methyl-1,4-phenylene)methylene(3-methyl-1,4-phenylene)oxy(2-sulfo-1,4-phenylene)carbonyl(3-sulfo-1,4-phenylene) disodium salt] (9CI) (CA INDEX NAME)



●2 Na

IC ICM C08G065-48
ICS C08J005-22; H01M008-02; H01M008-10; C08L071-00
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38
IT Polyketones
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyether-, aromatic, block, fluorine-containing, sulfonated; preparation of proton conductive block-copolymers with good water resistance, low moisture absorption, and low methanol penetration for proton conductive membranes)
IT Polysulfones, uses
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyether-, aromatic, block, sulfonated; preparation of proton conductive block-copolymers with good water resistance, low moisture absorption, and low methanol

penetration for proton conductive membranes)

IT Polysulfones, uses
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyether-, aromatic, block; preparation of proton conductive block-copolymers with good water resistance, low moisture absorption, and low methanol penetration for proton conductive membranes)

IT Polysulfones, uses
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyether-, aromatic, fluorine-containing, block, sulfonated; preparation of proton conductive block-copolymers with good water resistance, low moisture absorption, and low methanol penetration for proton conductive membranes)

IT Polyketones
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(polyether-, aromatic, fluorine-containing, sulfonated, intermediates; preparation of proton conductive block-copolymers with good water resistance, low moisture absorption, and low methanol penetration for proton conductive membranes)

IT Polysulfones, preparation
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(polyether-, aromatic, intermediates; preparation of proton conductive block-copolymers with good water resistance, low moisture absorption, and low methanol penetration for proton conductive membranes)

IT Polysulfones, preparation
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(polyether-, aromatic, sulfonated, intermediates; preparation of proton conductive block-copolymers with good water resistance, low moisture absorption, and low methanol penetration for proton conductive membranes)

IT Fluoropolymers, preparation
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(polyether-polyketone-, aromatic, sulfonated, intermediates; preparation of proton conductive block-copolymers with good water resistance, low moisture absorption, and low methanol penetration for proton conductive membranes)

IT Fluoropolymers, uses
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyether-polysulfone-, aromatic, block, sulfonated; preparation of proton conductive block-copolymers with good water resistance, low moisture absorption, and low methanol penetration for proton conductive membranes)

IT Polyethers, uses
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyketone-, aromatic, block, fluorine-containing, sulfonated; preparation of proton conductive block-copolymers with good water resistance, low moisture absorption, and low methanol penetration for proton conductive membranes)

IT Polyethers, preparation
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(polyketone-, aromatic, fluorine-containing, sulfonated, intermediates; preparation of proton conductive block-copolymers with good water resistance, low moisture absorption, and low methanol penetration for proton conductive membranes)

IT Polyethers, uses
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical

or engineered material use); PREP (Preparation); USES (Uses)
(polysulfone-, aromatic, block, sulfonated; preparation of proton conductive block-copolymers with good water resistance, low moisture absorption, and low methanol penetration for proton conductive membranes)

IT Polyethers, uses
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polysulfone-, aromatic, block; preparation of proton conductive block-copolymers with good water resistance, low moisture absorption, and low methanol penetration for proton conductive membranes)

IT Polyethers, uses
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polysulfone-, aromatic, fluorine-containing, block, sulfonated; preparation of proton conductive block-copolymers with good water resistance, low moisture absorption, and low methanol penetration for proton conductive membranes)

IT Polyethers, preparation
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(polysulfone-, aromatic, intermediates; preparation of proton conductive block-copolymers with good water resistance, low moisture absorption, and low methanol penetration for proton conductive membranes)

IT Polyethers, preparation
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(polysulfone-, aromatic, sulfonated, intermediates; preparation of proton conductive block-copolymers with good water resistance, low moisture absorption, and low methanol penetration for proton conductive membranes)

IT 389600-31-1P 701915-80-2P 785802-31-5P 812669-30-0P
812669-39-9P 812669-44-6P 812669-47-9P 812669-50-4P
812669-55-9P 812677-79-5P
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(intermediate; preparation of proton conductive block-copolymers with good water resistance, low moisture absorption, and low methanol penetration for proton conductive membranes)

L73 ANSWER 6 OF 35 HCAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 2004:965313 HCAPLUS Full-text
DOCUMENT NUMBER: 141:396262
TITLE: Aromatic polyether type ion conductive ultrahigh polymer with good mechanical properties, intermediate therefor, and processes for producing these
INVENTOR(S): Onodera, Toru; Sasaki, Shigeru
PATENT ASSIGNEE(S): Sumitomo Chemical Company Limited, Japan
SOURCE: PCT Int. Appl., 26 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004096889	A1	20041111	WO 2004-JP5920	20040423

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CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG,
ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE,
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG,
MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT,
RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT,
TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW,
AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY,
CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC,
NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM,
GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

JP 2004346305	A	20041209	JP 2004-65219	2004 0309 <--
JP 4274003	B2	20090603		
CA 2523526	A1	20041111	CA 2004-2523526	2004 0423 <--
EP 1624009	A1	20060208	EP 2004-729274	2004 0423 <--
EP 1624009	B1	20080206		
R: DE, FR, GB				
CN 1780872	A	20060531	CN 2004-80011419	2004 0423 <--
CN 100371367	C	20080227		
US 20060258758	A1	20061116	US 2005-554707	2005 1027 <--

PRIORITY APPLN. INFO.:	JP 2003-123274	A	2003 0428 <--
	WO 2004-JP5920	W	2004 0423

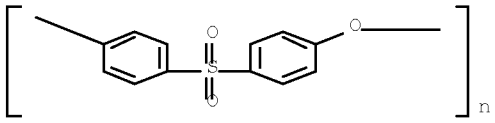
ED Entered STN: 12 Nov 2004

AB Title polymer with ion exchange capacity ≥0.1 meq/g comprises an acid group-modified aromatic polyether type ultrahigh polymer having ≥1 structural unit selected from [(Ar1O)mAr1]a and [(Ar2O)nAr2]b, wherein a, b = number of structural unit (a + b = ≥2); Ar1, Ar2 = aromatic divalent group; and m, n = ≥10 integer. Thus, 20 g chloride-terminated polyether-polysulfone with Mn 5.50 + 104 was coupled in the presence of 2,2'-bipyridyl and dicyclopentadienyl nickel to give a polymer with Mn 2.20 + 105 and Mw 3.93 + 105 and sulfonated with concentrated sulfuric acid to give an ionic conductive polymer with ion exchange capacity 1.15 meq/g and elongation at break 25%.

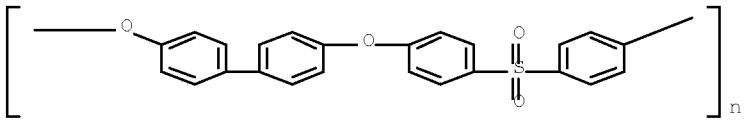
IT 25667-42-9, Sumika Excel PES 5200P 25839-81-0
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(aromatic polyether type ion conductive ultrahigh polymers with good mech. properties)

RN 25667-42-9 HCAPLUS

CN Poly(oxy-1,4-phenylenesulfonyl-1,4-phenylene) (CA INDEX NAME)

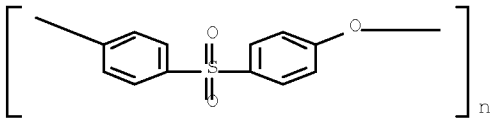


RN 25839-81-0 HCAPLUS
CN Poly(oxy[1,1'-biphenyl]-4,4'-diyloxy-1,4-phenylenesulfonyl-1,4-phenylene) (CA INDEX NAME)

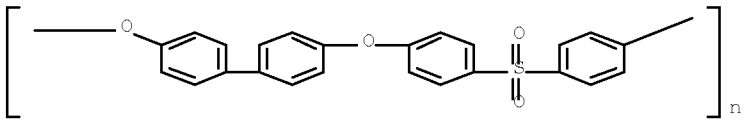


IT 25667-42-9DP, Sumika Excel PES 5200P, block copolymers with polyether-polysulfones, sulfonated
25839-81-0DP, Bis(4-chlorophenyl) sulfone-4,4'-dihydroxybiphenyl copolymer, SRU, block copolymers with polyether-polysulfones, sulfonated
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(aromatic polyether type ion conductive ultrahigh polymers with good mech. properties)

RN 25667-42-9 HCAPLUS
CN Poly(oxy-1,4-phenylenesulfonyl-1,4-phenylene) (CA INDEX NAME)



RN 25839-81-0 HCAPLUS
CN Poly(oxy[1,1'-biphenyl]-4,4'-diyloxy-1,4-phenylenesulfonyl-1,4-phenylene) (CA INDEX NAME)



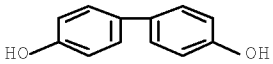
IT 25608-64-4 83094-08-0
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(assumed monomers; aromatic polyether type

ion conductive ultrahigh polymers
with good mech. properties)

RN 25608-64-4 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diol, polymer with
1,1'-sulfonylbis[4-chlorobenzene] (CA INDEX NAME)

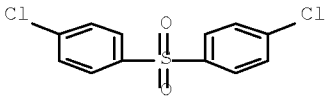
CM 1

CRN 92-88-6
CMF C12 H10 O2



CM 2

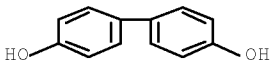
CRN 80-07-9
CMF C12 H8 Cl2 O2 S



RN 83094-08-0 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diol, polymer with
1,1'-sulfonylbis[4-chlorobenzene] and 4,4'-sulfonylbis[phenol]
(CA INDEX NAME)

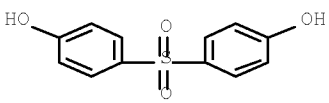
CM 1

CRN 92-88-6
CMF C12 H10 O2



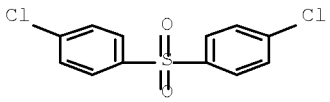
CM 2

CRN 80-09-1
CMF C12 H10 O4 S



CM 3

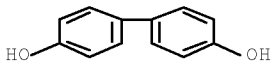
CRN 80-07-9
CMF C12 H8 Cl2 O2 S



IT 25608-64-4DP, block copolymers with
polyether-polysulfones, sulfonated 83094-08-0DP,
coupled, sulfonated
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical
or engineered material use); PREP (Preparation); USES (Uses)
(assumed monomers; aromatic polyether type
ion conductive ultrahigh polymers
with good mech. properties)
RN 25608-64-4 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diol, polymer with
1,1'-sulfonylbis[4-chlorobenzene] (CA INDEX NAME)

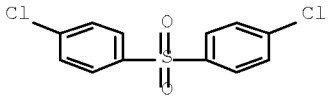
CM 1

CRN 92-88-6
CMF C12 H10 O2



CM 2

CRN 80-07-9
CMF C12 H8 Cl2 O2 S

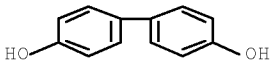


RN 83094-08-0 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diol, polymer with
1,1'-sulfonylbis[4-chlorobenzene] and 4,4'-sulfonylbis[phenol]
(CA INDEX NAME)

CM 1

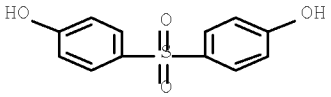
CRN 92-88-6

CMF C12 H10 O2



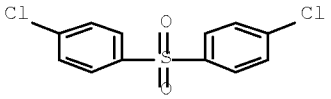
CM 2

CRN 80-09-1
CMF C12 H10 O4 S



CM 3

CRN 80-07-9
CMF C12 H8 Cl2 O2 S



IC ICM C08G065-48
ICS C08G065-40; H01B001-06; H01M008-02
CC 37-3 (Plastics Manufacture and Processing)
Section cross-reference(s): 35, 38, 52
ST arom polyether ion conductive ultrahigh polymer mech property intermediate; polyether polysulfone coupling sulfonation
IT Coupling reaction
Ionic conductors
(aromatic polyether type ion conductive ultrahigh polymers with good mech. properties)
IT Catalysts
(aromatic polyether type ion conductive ultrahigh polymers with good mech. properties useful as catalysts)
IT Polymer electrolytes
(aromatic polyether type ion conductive ultrahigh polymers with good mech. properties useful as polymer electrolytes)
IT Fuel cells
(aromatic polyether type ion conductive ultrahigh polymers with good mech. properties useful for fuel cells)
IT Polyethers, uses

RL: TEM (Technical or engineered material use); USES (Uses)
(aromatic, sulfonated; aromatic polyether type ion conductive ultrahigh polymers with good mech. properties)

IT Polysulfones, preparation
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyether-, block, sulfonated; aromatic polyether type ion conductive ultrahigh polymers with good mech. properties)

IT Polysulfones, preparation
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyether-, sulfonated; aromatic polyether type ion conductive ultrahigh polymers with good mech. properties)

IT Polysulfones, processes
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(polyether-; aromatic polyether type ion conductive ultrahigh polymers with good mech. properties)

IT Polyethers, preparation
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polysulfone-, block, sulfonated; aromatic polyether type ion conductive ultrahigh polymers with good mech. properties)

IT Polyethers, preparation
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polysulfone-, sulfonated; aromatic polyether type ion conductive ultrahigh polymers with good mech. properties)

IT Polyethers, processes
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(polysulfone-; aromatic polyether type ion conductive ultrahigh polymers with good mech. properties)

IT 25667-42-9, Sumika Excel PES 5200P 25839-81-0
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(aromatic polyether type ion conductive ultrahigh polymers with good mech. properties)

IT 25667-42-9DP, Sumika Excel PES 5200P, block copolymers with polyether-polysulfones, sulfonated
25839-81-0DP, Bis(4-chlorophenyl) sulfone-4,4'-dihydroxybiphenyl copolymer, SRU, block copolymers with polyether-polysulfones, sulfonated
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(aromatic polyether type ion conductive ultrahigh polymers with good mech. properties)

IT 25608-64-4 83094-08-0
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(assumed monomers; aromatic polyether type ion conductive ultrahigh polymers with good mech. properties)

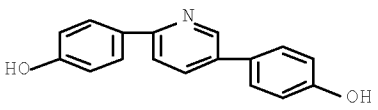
IT 25608-64-4DP, block copolymers with polyether-polysulfones, sulfonated 83094-08-0DP, coupled, sulfonated
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(assumed monomers; aromatic polyether type
ion conductive ultrahigh polymers
with good mech. properties)
REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L73 ANSWER 7 OF 35 HCAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 2004:44652 HCAPLUS Full-text
DOCUMENT NUMBER: 140:342007
TITLE: Proton conducting membranes based on polymer blends for use in high temperature PEM fuel cells
AUTHOR(S): Kallitsis, Joannis K.; Gourdoupi, Nora
CORPORATE SOURCE: Department of Chemistry, University of Patras, GR-265 00, Greece
SOURCE: Journal of New Materials for Electrochemical Systems (2003), 6(4), 217-222
CODEN: JMESFQ; ISSN: 1480-2422
PUBLISHER: Journal of New Materials for Electrochemical Systems
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 19 Jan 2004
AB Blends of sulfonated polysulfone (SPSF) with either polybenzimidazole (PBI) or an aromatic polyether composed of pyridine and Ph phosphinoxide units (PPyPO) were developed; they possessed promising properties for exploitation as high temperature polymer electrolytes. All blends exhibited good mech. and thermal stability and high ionic conductivities in the range of 10-2 S/cm after doping with phosphoric acid. Examination of the oxidative stability of the membranes was performed using hydrogen peroxide in the presence of a catalytic amount of FeCl2, and SPSF/PBI blends show low oxidative stability, even with 5% weight PBI, while the SPSF/PPyPO blends showed improved properties concerning their tolerance towards oxidative conditions. Finally, a preliminary work on a PBI/PPyPO blend is reported. Initial results such as oxidative stability and high ionic conductivity (10-2 S/cm) of this blend are encouraging for further exploitation of this system.
IT 643753-97-3, Phenol, 4,4'-(2,5-pyridinediyl)bis-, polymer with bis(4-fluorophenyl)phenylphosphine oxide
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); PYP (Physical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent); USES (Uses)
(PPyPO, medium and high Mw, blends with PBI or SPSF(Na)x, phosphoric acid-doped; proton conducting membranes based on polymer blends for use in high temperature PEM fuel cells)
RN 643753-97-3 HCAPLUS
CN Phenol, 4,4'-(2,5-pyridinediyl)bis-, polymer with bis(4-fluorophenyl)phenylphosphine oxide (CA INDEX NAME)

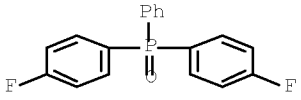
CM 1

CRN 155266-51-6
CMF C17 H13 N O2

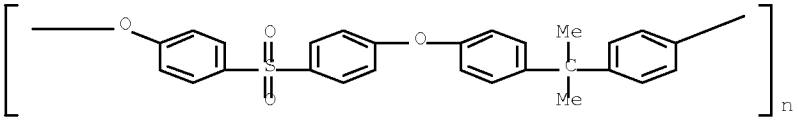


CM 2

CRN 54300-32-2
CMF C18 H13 F2 O P



IT 25135-51-7D, sulfonated, sodium salt
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); PYP (Physical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent); USES (Uses)
(SPSF(Na)x, blends with PPyPO, phosphoric acid-doped; proton conducting membranes based on polymer blends for use in high temperature PEM fuel cells)
RN 25135-51-7 HCAPLUS
CN Poly[oxy-1,4-phenylenesulfonyl-1,4-phenyleneoxy-1,4-phenylene(1-methylethylidene)-1,4-phenylene] (CA INDEX NAME)



CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 35, 36, 38, 76
IT Polyethers, uses
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); PYP (Physical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent); USES (Uses)
(aromatic; proton conducting membranes based on polymer blends for use in high temperature PEM fuel cells)
IT Glass transition temperature
Ionic conductivity
Loss modulus
Storage modulus
(of phosphate-doped polymer blends; proton conducting membranes based on polymer blends for use in high temperature PEM fuel cells)
IT Polyethers, uses
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); PYP (Physical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent); USES (Uses)
(polyketone-, sulfonated; proton conducting membranes based on polymer blends for use in high temperature PEM fuel cells)
IT Polyethers, uses
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); PYP (Physical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent); USES (Uses)
(polysulfone-, sulfonated; proton conducting membranes based on polymer blends for use in high temperature PEM fuel cells)

IT 643753-97-3, Phenol, 4,4'-(2,5-pyridinediyl)bis-, polymer with bis(4-fluorophenyl)phenylphosphine oxide
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); PYP (Physical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent); USES (Uses)
(PPyPO, medium and high Mw, blends with PBI or SPSF(Na)x, phosphoric acid-doped; proton conducting membranes based on polymer blends for use in high temperature PEM fuel cells)

IT 25135-51-7D, sulfonated, sodium salt
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); PYP (Physical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent); USES (Uses)
(SPSF(Na)x, blends with PPyPO, phosphoric acid-doped; proton conducting membranes based on polymer blends for use in high temperature PEM fuel cells)

REFERENCE COUNT: 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

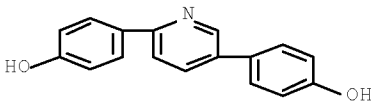
L73 ANSWER 8 OF 35 HCAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 2003:937283 HCAPLUS Full-text
DOCUMENT NUMBER: 140:96831
TITLE: Novel Proton-Conducting Polyelectrolyte Composed of an Aromatic Polyether Containing Main-Chain Pyridine Units for Fuel Cell Applications
AUTHOR(S): Gourdoupi, N.; Andreopoulou, A. K.; Deimede, V.; Kallitsis, J. K.
CORPORATE SOURCE: Department of Chemistry, University of Patras, Rio-Patras, GR-26500, Greece
SOURCE: Chemistry of Materials (2003), 15(26), 5044-5050
CODEN: CMATEX; ISSN: 0897-4756
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 02 Dec 2003
AB A new high-mol.-weight, soluble, wholly aromatic polyether bearing polar pyridine and phosphine oxide groups along the main chain is presented. This easily processable polyether presents excellent film-forming properties, high glass-transition temperature (up to 260°), and thermal stability up to 500°, all together combined with an ability to form ionically conductive materials after doping with phosphoric acid. The polar groups throughout the polymeric chains enable high acid uptake and subsequent high ionic conductivity for the doped membranes in the range of 10-2 S/cm. Characterization of all polymeric materials prepared was performed using NMR, size exclusion chromatog., thermal and mech. anal., and conductivity measurements. The oxidative stability of the materials was studied using hydrogen peroxide, and the treated membranes were further characterized using dynamic mech. anal. and FT-Raman spectroscopy. The conductivity of the doped membranes was determined as a function of the doping level. The temperature dependence of the conductivity was also studied.

IT 643753-97-3P
RL: PRP (Properties); PUR (Purification or recovery); SPN (Synthetic preparation); PREP (Preparation)
(2,5-PPyPO; novel proton-conducting polyelectrolyte composed of aromatic polyether containing main-chain pyridine units for fuel cell applications)

RN 643753-97-3 HCAPLUS
CN Phenol, 4,4'-(2,5-pyridinediyl)bis-, polymer with bis(4-fluorophenyl)phenylphosphine oxide (CA INDEX NAME)

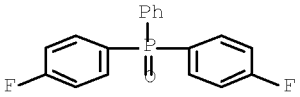
CM 1

CRN 155266-51-6
CMF C17 H13 N O2



CM 2

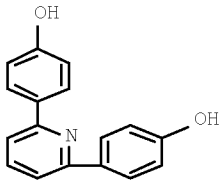
CRN 54300-32-2
CMF C18 H13 F2 O P



IT 643753-98-4P
RL: PRP (Properties); PUR (Purification or recovery); SPN (Synthetic preparation); PREP (Preparation)
(2,6-PPyPO; novel proton-conducting polyelectrolyte composed of aromatic polyether containing main-chain pyridine units for fuel cell applications)
RN 643753-98-4 HCAPLUS
CN Phenol, 4,4'-(2,6-pyridinediyl)bis-, polymer with bis(4-fluorophenyl)phenylphosphine oxide (9CI) (CA INDEX NAME)

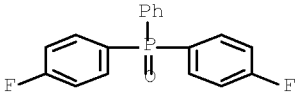
CM 1

CRN 171820-16-9
CMF C17 H13 N O2



CM 2

CRN 54300-32-2
CMF C18 H13 F2 O P



CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 36, 38, 76
ST polyelectrolyte arom polyether pyridine
phosphine oxide fuel cell separator; proton cond polyelectrolyte
phosphoric acid doping storage loss modulus
IT Membranes, nonbiological
(elec. conductive; novel proton-conducting polyelectrolyte
composed of aromatic polyether containing
main-chain pyridine units for fuel cell applications)
IT Glass transition temperature
(from DMA scans; novel proton-conducting polyelectrolyte
composed of aromatic polyether containing
main-chain pyridine units for fuel cell applications)
IT Fuel cells
(membranes for; novel proton-conducting polyelectrolyte
composed of aromatic polyether containing
main-chain pyridine units for fuel cell applications)
IT Doping
Fuel cell separators
Polyelectrolytes
(novel proton-conducting polyelectrolyte composed of
aromatic polyether containing main-chain pyridine
units for fuel cell applications)
IT Cross-coupling reaction
(of organoboron compds.; novel proton-conducting
polyelectrolyte composed of aromatic polyether
containing main-chain pyridine units for fuel cell applications)
IT Stability
(oxidative; novel proton-conducting polyelectrolyte composed of
aromatic polyether containing main-chain pyridine
units for fuel cell applications)
IT Ionic conductivity
(proton; novel proton-conducting
polyelectrolyte composed of aromatic polyether
containing main-chain pyridine units for fuel cell applications)
IT Polyoxyarylenes
RL: PRP (Properties); PUR (Purification or recovery); SPN
(Synthetic preparation); PREP (Preparation)
(pyridine and phosphine oxide group-containing; novel
proton-conducting polyelectrolyte composed of aromatic
polyether containing main-chain pyridine units for fuel
cell applications)
IT 643753-97-3P
RL: PRP (Properties); PUR (Purification or recovery); SPN
(Synthetic preparation); PREP (Preparation)
(2,5-PPyPO; novel proton-conducting polyelectrolyte composed of
aromatic polyether containing main-chain pyridine
units for fuel cell applications)
IT 643753-98-4P
RL: PRP (Properties); PUR (Purification or recovery); SPN
(Synthetic preparation); PREP (Preparation)
(2,6-PPyPO; novel proton-conducting polyelectrolyte composed of
aromatic polyether containing main-chain pyridine
units for fuel cell applications)
IT 7664-38-2, Phosphoric acid, uses
RL: DEV (Device component use); PEP (Physical, engineering or
chemical process); PRP (Properties); PYP (Physical process); PROC
(Process); USES (Uses)
(membrane dopant, complexes with 2,5-PPyPO; novel
proton-conducting polyelectrolyte composed of aromatic
polyether containing main-chain pyridine units for fuel
cell applications)
IT 497-19-8, Sodium carbonate (Na2CO3), uses 584-08-7, Potassium
carbonate 7647-01-0, Hydrochloric acid, uses 15438-31-0, uses
RL: CAT (Catalyst use); USES (Uses)

(novel proton-conducting polyelectrolyte composed of aromatic polyether containing main-chain pyridine units for fuel cell applications)

IT 14221-01-3P
RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(novel proton-conducting polyelectrolyte composed of aromatic polyether containing main-chain pyridine units for fuel cell applications)

IT 155266-51-6P, 2,5-Bis(4-hydroxyphenyl)pyridine 171820-16-9P
RL: PRP (Properties); PUR (Purification or recovery); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(novel proton-conducting polyelectrolyte composed of aromatic polyether containing main-chain pyridine units for fuel cell applications)

IT 624-28-2, 2,5-Dibromopyridine 626-05-1, 2,6-Dibromopyridine
7722-84-1, Hydrogen peroxide, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(novel proton-conducting polyelectrolyte composed of aromatic polyether containing main-chain pyridine units for fuel cell applications)

IT 54300-32-2P, Bis(4-fluorophenyl)phenylphosphine oxide
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(novel proton-conducting polyelectrolyte composed of aromatic polyether containing main-chain pyridine units for fuel cell applications)

IT 182281-01-2P
RL: SPN (Synthetic preparation); PREP (Preparation)
(novel proton-conducting polyelectrolyte composed of aromatic polyether containing main-chain pyridine units for fuel cell applications)

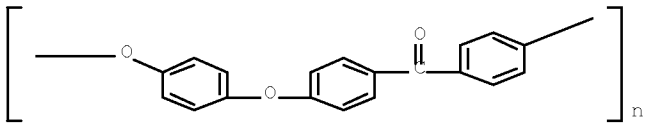
REFERENCE COUNT: 39 THERE ARE 39 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L73 ANSWER 9 OF 35 HCAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 2003:728207 HCAPLUS Full-text
DOCUMENT NUMBER: 140:94569
TITLE: Study of the effect of electric field on positron annihilation parameters in polymers
AUTHOR(S): Mohamed, Hamdy F. M.
CORPORATE SOURCE: Faculty of Science, Physics Department, El-Minia University, El-Minia, 61519, Egypt
SOURCE: Radiation Physics and Chemistry (2003), 68(3-4), 449-452
CODEN: RPCHDM; ISSN: 0969-806X
PUBLISHER: Elsevier Science Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 17 Sep 2003
AB Positron annihilation lifetime measurements have been performed to study the effect of an external elec. field in several polymers. The application of the elec. field on polytetrafluoroethylene (PTFE) and ultrahigh-mol. weight polyethylene (UHMWPE) noticeably decreased the ortho-positronium (o-Ps) intensity. The o-Ps intensity increased with increasing elec. field strength in the poly(ethylene terephthalate), PET, poly(ethylene naphthalate), PEN, and poly(aryl-ether-ether-ketone), PEEK samples. The data are consistent with a hypothesis that nonpolar polymers (PTFE and UHMWPE) show a decrease in the o-Ps intensity with increasing elec. field, while the effect seems to be opposite in polar polymers (PEN, PET and PEEK).

IT 31694-16-3, PEEK
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process)
(effect of elec. field on positron annihilation parameters in polymers)

RN 31694-16-3 HCAPLUS

CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)



CC 36-5 (Physical Properties of Synthetic High Polymers)
IT Polyketones
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process)
(polyether-, aromatic; effect of elec. field on positron annihilation parameters in polymers)
IT Polyethers, processes
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process)
(polyketone-, aromatic; effect of elec. field on positron annihilation parameters in polymers)
IT 9002-84-0, PTFE 24968-11-4, PEN 25038-59-9, PET polyester, processes 25230-87-9 31694-16-3, PEEK
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process)
(effect of elec. field on positron annihilation parameters in polymers)
IT 9002-88-4, Polyethylene
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process)
(ultrahigh-mol.weight; effect of elec. field on positron annihilation parameters in polymers)
REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L73 ANSWER 10 OF 35 HCAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 2003:434665 HCAPLUS Full-text
DOCUMENT NUMBER: 139:22835
TITLE: Inexpensive and durable polyelectrolyte compositions
INVENTOR(S): Kinouchi, Masayuki; Hirano, Tetsuji; Hisano, Nobuharu
PATENT ASSIGNEE(S): Ube Industries, Ltd., Japan
SOURCE: PCT Int. Appl., 71 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003046080	A1	20030605	WO 2002-JP12510	2002 1129

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    EP 2058889             A1    20090513    EP 2009-1023
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    JP 2003331647          A     20031121    JP 2003-55686
                                                          2003
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    JP 3596545             B2    20041202
    US 20050069780         A1    20050331    US 2004-497305
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PRIORITY APPLN. INFO.:                         JP 2001-364298      A
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                                               EP 2002-788687      A3
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WO 2002-JP12510 W 2002 1129

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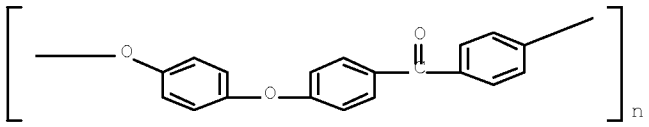
ED Entered STN: 06 Jun 2003

AB The compns. exhibiting a high ionic conductivity even in the absence of water or a solvent., useful for battery, fuel cell, etc., comprise both an aromatic polymer containing carbonyl linkages and/or sulfonyl linkages in the backbone chain and bearing cation-exchange groups and a fused salt. The aromatic polymer is preferably an arom . polyether sulfone comprising specific structural units and bearing cation-exchange groups, an aromatic polyether ketone comprising specific structural units and bearing cation-exchange groups, an aromatic polyether sulfone block copolymer consisting of at least one hydrophilic segment bearing cation-exchange groups and at least one hydrophobic segment free from cation-exchange groups, and/or an aromatic polyether ketone block copolymer consisting of at least one hydrophilic segment bearing cation-exchange groups and at least one hydrophobic segment free from cation-exchange groups. The use of such a block copolymer as the aromatic polymer gives polyelectrolyte compns. which are excellent in maintenance of structure even at high temperature Thus, heating a mixture of bis(4-fluorophenyl)sulfone 51.4, bis(4-hydroxyphenyl)sulfone 25, 4,4'-biphenol 18.9 and K carbonate 36 g in 300 mL AcNMe2 and 200 mL PhMe while stirring and distilling off water and PhMe at 165° for 3 h gave a copolymer which was isolated, washed and mixed at 10 g with 100 mL H2SO4 at room temperature for 24 h to give a polyether polysulfone (I) having ion-exchange capacity 1.73 mmol/g. Dissolving 1.3 g the I and 3 g N-ethylimidazole trifluoromethanesulfonate salt in 20 mL AcNMe2, casting the resulting solution on a glass surface and heating at 60° for 5 h and at 120° for 16 h gave a film with ion conductivity at 100° of 2x10-3 S/cm.

IT 31694-16-3DP, PEEK, sulfonated products
150274-07-0P
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(manufacture of inexpensive and durable polyelectrolyte compns.)

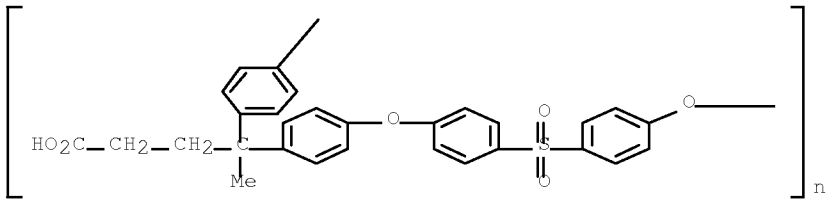
RN 31694-16-3 HCAPLUS

CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)



RN 150274-07-0 HCAPLUS

CN Poly[oxy-1,4-phenylenesulfonyl-1,4-phenyleneoxy-1,4-phenylene(3-carboxy-1-methylpropylidene)-1,4-phenylene] (CA INDEX NAME)



IC ICM C08L081-06
ICS C08L071-10; C08J005-22; C08G075-23; C08L025-02; C08L025-18

CC 37-3 (Plastics Manufacture and Processing)
Section cross-reference(s): 52

IT Polysulfones, properties
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(polyether-, aromatic, ionically functionalized; manufacture of inexpensive and durable polyelectrolyte compns.)
IT Polyethers, properties
Polyketones
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(polysulfone-, aromatic, ionically functionalized; manufacture of inexpensive and durable polyelectrolyte compns.)
IT 80-07-9DP, Bis(4-chlorophenyl)sulfone, block polymers with 4,4'-biphenol and polyethersulfone, sulfonted 92-88-6DP, 4,4'-Biphenol, block polymers with polyethersulfone and bis(4-chlorophenyl)sulfone, sulfonated 25667-42-9DP, Sumikaexcel PES 4100G, block copolymer with 4,4'-biphenol and bis(4-chlorophenyl)sulfone, sulfonated 31694-16-3DP, PEEK, sulfonated products 68491-85-0P, Styrene-p-styrenesulfonic acid copolymer 83094-08-0DP, sulfonated products 106108-28-5DP, Butylene-ethylene-styrene block copolymer, sulfonated products 150274-07-0P 150292-58-3P 475096-53-8DP, sulfonated products 537049-29-9DP, 4,4'-Biphenol-bis(4-fluorophenyl)sulfone-bis(4-hydroxyphenyl)sulfone copolymer, sulfonated products 538350-50-4P, Styrene-vinylbenzylsulfonic acid copolymer
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(manufacture of inexpensive and durable polyelectrolyte compns.)
REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L73 ANSWER 11 OF 35 HCAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 2003:319959 HCAPLUS Full-text
DOCUMENT NUMBER: 138:339060
TITLE: Crosslinkable aromatic resins having protonic acid groups, and ion conductive polymer membranes, binders, and fuel cells made by using the same
INVENTOR(S): Ishikawa, Junichi; Kuroki, Takashi; Fujiyama, Satoko; Omi, Takehiko; Nakata, Tomoyuki; Okawa, Yuichi; Miyazaki, Kazuhisa; Fujii, Shigeharu; Tamai, Shoji
PATENT ASSIGNEE(S): Mitsui Chemicals, Inc., Japan
SOURCE: PCT Int. Appl., 132 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003033566	A1	20030424	WO 2002-JP10536	2002 1010
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RW: DE, FR, GB, IT, SE				
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EP 1457511	A1	20040915	EP 2002-775319	
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KR 2006096123	A	20060906	KR 2006-715132	
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			KR 2004-704724	A3
				2004
				0330

ED Entered STN: 25 Apr 2003

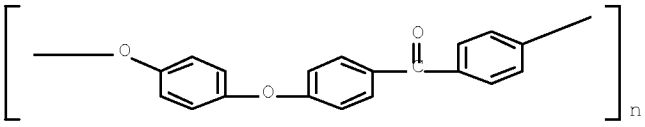
AB The invention relates to (A) a crosslinkable aromatic resin which has crosslinking groups and protonic acid groups and is suitable for electrolyte membranes and binders for fuel cells, (B) polymeric electrolyte membranes and binders for fuel cells, made by using the resin, and (C) fuel cells made by using the membranes or the binders. The aromatic resin has crosslinking groups which are not derived from protonic acid groups and are capable of causing crosslinking without the formation of a leaving component, and exhibits excellent ionic conductivity, heat resistance, water resistance, and adhesion, and low methanol permeability. It is preferable that the aromatic resin bears as the crosslinking groups both C1-10 alkyl bonded directly to an aromatic ring and carbonyl or carbon-carbon double or triple bonds, while preferred examples of the crosslinkable aromatic resin include aromatic polyether, aromatic polyamide, aromatic polyimide, aromatic polyamide-imide, and aromatic polyazole, each of which has crosslinking groups described above. Thus, 5,5'-carbonylbis(sodium 2-fluorobenzenesulfonate) obtained from 0.525 mol 4,4'-difluorobenzophenone and 210 mL 50% sulfuric acid 4.22, 4,4'-difluorobenzophenone 2.18, and 2,2-bis(3,5-dimethyl-4-hydroxyphenyl)propane 5.69 g were reacted at 160° for 4 h in the presence of potassium carbonate to give 10.39 g polyether ketone powder with reduced viscosity 0.85 dL/g, glass transition temperature 230°, and 5% weight loss temperature 367°, which was applied on a glass and dried at 200° for 4 h to give a membrane with conductivity 0.018 S/cm at 30° and 0.065 S/cm at 90°.

IT 31694-16-3DP, PEEK 450P, sodium sulfonated
RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(blend with polyether-polyketone or polybenzoxazole, crosslinked; preparation of crosslinkable aromatic resins having protonic acid groups for ion conductive polymer membranes, binders, and fuel cells)

RN 31694-16-3 HCAPLUS

CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)



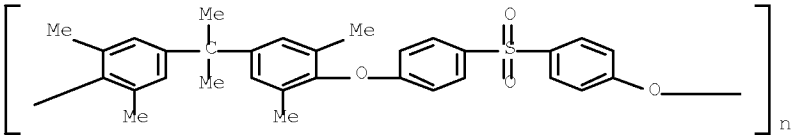
IT 32034-67-6P

RL: IMF (Industrial manufacture); PREP (Preparation)

(blend with protonic acid group containing polymer; preparation of crosslinkable aromatic resins having protonic acid groups for ion conductive polymer membranes, binders, and fuel cells)

RN 32034-67-6 HCAPLUS

CN Poly[oxy-1,4-phenylenesulfonyl-1,4-phenyleneoxy(2,6-dimethyl-1,4-phenylene)(1-methylethylidene)(3,5-dimethyl-1,4-phenylene)] (CA INDEX NAME)



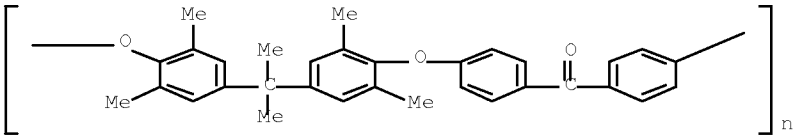
IT 87781-17-7P

RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(blend with protonic acid group containing polymer; preparation of crosslinkable aromatic resins having protonic acid groups for ion conductive polymer membranes, binders, and fuel cells)

RN 87781-17-7 HCAPLUS

CN Poly[oxy(2,6-dimethyl-1,4-phenylene)(1-methylethylidene)(3,5-dimethyl-1,4-phenylene)oxy-1,4-phenylenecarbonyl-1,4-phenylene] (CA INDEX NAME)

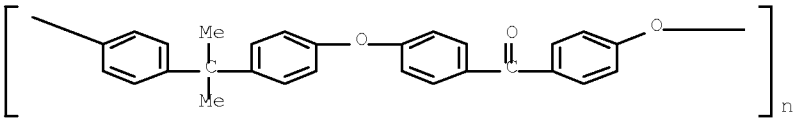


IT 41205-96-3P 515144-55-5P

RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP

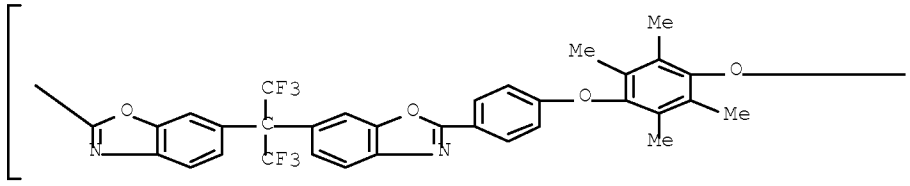
(Preparation); USES (Uses)
(blend with protonic acid group-containing polymer; preparation of crosslinkable aromatic resins having protonic acid groups for ion conductive polymer membranes, binders, and fuel cells)

RN 41205-96-3 HCAPLUS
CN Poly[oxy-1,4-phenylenecarbonyl-1,4-phenyleneoxy-1,4-phenylene(1-methylethylidene)-1,4-phenylene] (CA INDEX NAME)



RN 515144-55-5 HCAPLUS
CN Poly[2,6-benzoxazolediyl[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]-6,2-benzoxazolediyl-1,4-phenyleneoxy(2,3,5,6-tetramethyl-1,4-phenylene)oxy-1,4-phenylene] (CA INDEX NAME)

PAGE 1-A



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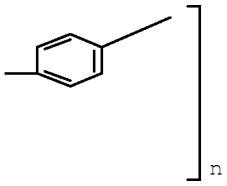
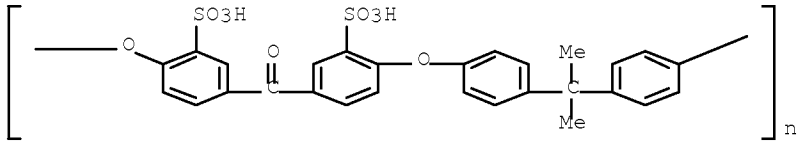


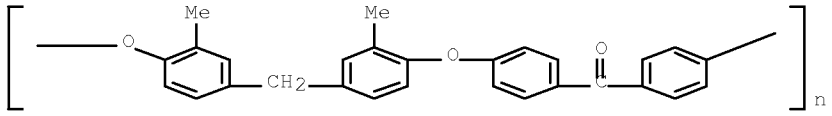
IT 342047-79-4DP, reaction products with ethenylphenol
515144-45-3DP, sulfonated 515144-59-9P
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(crosslinked; preparation of crosslinkable aromatic resins having protonic acid groups for ion conductive polymer membranes, binders, and fuel cells)

RN 342047-79-4 HCAPLUS
CN Poly[oxy(2-sulfo-1,4-phenylene)carbonyl(3-sulfo-1,4-phenylene)oxy-1,4-phenylene(1-methylethylidene)-1,4-phenylene sodium salt (1:2)] (CA INDEX NAME)

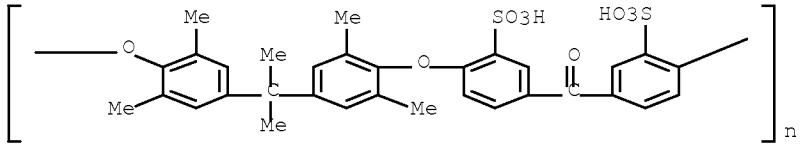


●2 Na

RN 515144-45-3 HCAPLUS
CN Poly[oxy(2-methyl-1,4-phenylene)methylene(3-methyl-1,4-phenylene)oxy-1,4-phenylenecarbonyl-1,4-phenylene] (CA INDEX NAME)



RN 515144-59-9 HCAPLUS
CN Poly[oxy(2,6-dimethyl-1,4-phenylene)(1-methylethylidene)(3,5-dimethyl-1,4-phenylene)oxy(2-sulfo-1,4-phenylene)carbonyl(3-sulfo-1,4-phenylene) sodium salt (1:2)] (CA INDEX NAME)



●2 Na

IT 515144-31-7P 515811-98-0P
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(preparation of crosslinkable aromatic resins having protonic acid groups for ion conductive polymer membranes, binders, and fuel cells)
RN 515144-31-7 HCAPLUS
CN Benzenesulfonic acid, 3,3'-carbonylbis[6-fluoro-, sodium salt (1:2), polymer with bis(4-fluorophenyl)methanone and 4,4'-[1,4-phenylenebis(1-methylethylidene)]bis[2,6-dimethylphenol] (CA INDEX NAME)

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CRN 210531-45-6
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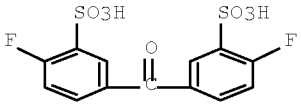

CM 2

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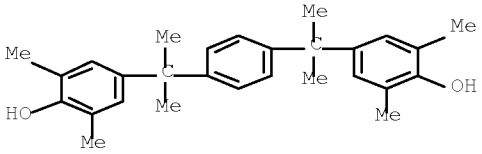

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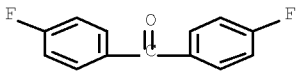
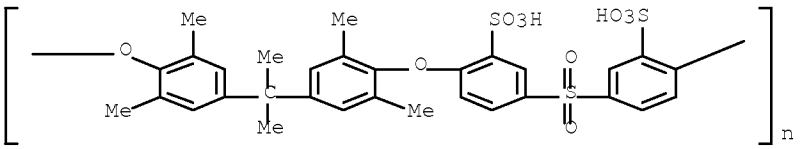
CRN 345-92-6
CMF C13 H8 F2 O



RN 515811-98-0 HCAPLUS
CN Poly[oxy(2,6-dimethyl-1,4-phenylene)(1-methylethylidene)(3,5-dimethyl-1,4-phenylene)oxy(2-sulfo-1,4-phenylene)sulfonyl(3-sulfo-1,4-phenylene) sodium salt (1:2)] (CA INDEX NAME)



IC ICM C08G065-40
ICS C08G069-48; C08G073-10; C08J005-22; H01M008-02
CC 37-3 (Plastics Manufacture and Processing)
Section cross-reference(s): 38, 52

ST crosslinkable arom resin protonic acid group ion conductive membrane; carbonylbissodiumfluorobenzenesulfonate difluorobenzophenone bisdimethylhydroxyphenylpropane copolymer membrane prepn

IT Polyamides, uses
Polyimides, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(aromatic, protonic acid-containing; preparation of crosslinkable aromatic resins having protonic acid groups for ion conductive polymer membranes, binders, and fuel cells)

IT Polyimides, preparation
RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(blend with protonic acid group-containing polymer; preparation of crosslinkable aromatic resins having protonic acid groups for ion conductive polymer membranes, binders, and fuel cells)

IT Binders
(ion conductive; preparation of crosslinkable aromatic resins having protonic acid groups for ion conductive polymer membranes, binders, and fuel cells)

IT Membranes, nonbiological
(ionic conductive; preparation of crosslinkable aromatic resins having protonic acid groups for ion conductive polymer membranes, binders, and fuel cells)

IT Polyimides, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polyamide-, aromatic, protonic acid-containing; preparation of crosslinkable aromatic resins having protonic acid groups for ion conductive polymer membranes, binders, and fuel cells)

IT Polyimides, preparation
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyamide-, crosslinked; preparation of crosslinkable aromatic resins having protonic acid groups for ion conductive polymer membranes, binders, and fuel cells)

IT Polyketones
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyamide-; preparation of crosslinkable aromatic resins having protonic acid groups for ion conductive polymer membranes, binders, and fuel cells)

IT Polyketones
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyamide-polyimide-, crosslinked; preparation of crosslinkable aromatic resins having protonic acid groups for ion conductive polymer membranes, binders, and fuel cells)

IT Polyimides, preparation
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyamide-polyketone-, crosslinked; preparation of crosslinkable aromatic resins having protonic acid groups for ion conductive polymer membranes, binders, and fuel cells)

IT Polyethers, preparation
RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polybenzoxazole-, blend with protonic acid group-containing polymer; preparation of crosslinkable aromatic resins having protonic acid groups for ion conductive polymer membranes, binders, and fuel cells)

IT Polyketones
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(polybenzoxazole-, sodium sulfonated, crosslinked; preparation of crosslinkable aromatic resins having protonic acid groups for ion conductive polymer membranes, binders, and fuel cells)

IT Polybenzoxazoles
RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyether-, blend with protonic acid group-containing polymer; preparation of crosslinkable aromatic resins having protonic acid groups for ion conductive polymer membranes, binders, and fuel cells)

IT Polysulfones, preparation
Polysulfones, preparation
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyether-, crosslinked; preparation of crosslinkable aromatic resins having protonic acid groups for ion conductive polymer membranes, binders, and fuel cells)

IT Polyketones
RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyether-, optionally crosslinked, and blend with protonic acid group-containing polymers; preparation of crosslinkable aromatic resins having protonic acid groups for ion conductive polymer membranes, binders, and fuel cells)

IT Polysulfides
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyether-, polyketones-; preparation of crosslinkable aromatic resins having protonic acid groups for ion conductive polymer membranes, binders, and fuel cells)

IT Polysulfones, preparation
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyether-; preparation of crosslinkable aromatic resins having protonic acid groups for ion conductive polymer membranes, binders, and fuel cells)

IT Polysulfones, preparation
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyether-polyketone-; preparation of crosslinkable aromatic resins having protonic acid groups for ion conductive polymer membranes, binders, and fuel cells)

IT Polyketones
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyether-polysulfone-; preparation of crosslinkable aromatic resins having protonic acid groups for ion conductive polymer membranes, binders, and fuel cells)

IT Polyamides, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polyimide-, aromatic, protonic acid-containing; preparation of crosslinkable aromatic resins having protonic acid groups for ion conductive polymer membranes, binders, and fuel cells)

IT Polyamides, preparation
Polyketones
Polysulfones, preparation
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyimide-, crosslinked; preparation of crosslinkable aromatic resins having protonic acid groups for ion conductive polymer membranes, binders, and fuel cells)

IT Polysulfones, preparation
RL: IMF (Industrial manufacture); POF (Polymer in formulation);

PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyimide-polyketone-, blend with protonic acid group-containing polymers; preparation of crosslinkable aromatic resins having protonic acid groups for ion conductive polymer membranes, binders, and fuel cells)

IT Polyamides, preparation
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyimide-polyketone-, crosslinked; preparation of crosslinkable aromatic resins having protonic acid groups for ion conductive polymer membranes, binders, and fuel cells)

IT Polyketones
RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyimide-polysulfone-, blend with protonic acid group-containing polymers; preparation of crosslinkable aromatic resins having protonic acid groups for ion conductive polymer membranes, binders, and fuel cells)

IT Polyimides, preparation
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyketone-, crosslinked; preparation of crosslinkable aromatic resins having protonic acid groups for ion conductive polymer membranes, binders, and fuel cells)

IT Polyethers, preparation
RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyketone-, optionally crosslinked, and blend with protonic acid group-containing polymers; preparation of crosslinkable aromatic resins having protonic acid groups for ion conductive polymer membranes, binders, and fuel cells)

IT Polybenzoxazoles
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyketone-, sodium sulfonated, crosslinked; preparation of crosslinkable aromatic resins having protonic acid groups for ion conductive polymer membranes, binders, and fuel cells)

IT Polyamides, preparation
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyketone-; preparation of crosslinkable aromatic resins having protonic acid groups for ion conductive polymer membranes, binders, and fuel cells)

IT Polyimides, preparation
RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyketone-polysulfone-, blend with protonic acid group-containing polymers; preparation of crosslinkable aromatic resins having protonic acid groups for ion conductive polymer membranes, binders, and fuel cells)

IT Polyethers, preparation
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyketone-polysulfone-; preparation of crosslinkable aromatic resins having protonic acid groups for ion conductive polymer membranes, binders, and fuel cells)

IT Polyethers, preparation
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polysulfide-, polyketones-; preparation of crosslinkable aromatic resins having protonic acid groups for ion conductive polymer membranes, binders, and fuel cells)

IT Polyethers, preparation
Polyethers, preparation
Polyimides, preparation
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polysulfone-, crosslinked; preparation of crosslinkable aromatic resins having protonic acid groups for ion conductive polymer membranes, binders, and fuel cells)

IT Polyethers, preparation
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polysulfone-; preparation of crosslinkable aromatic resins having protonic acid groups for ion conductive polymer membranes, binders, and fuel cells)

IT Fuel cells
Ionic conductors
Polymer electrolytes
(preparation of crosslinkable aromatic resins having protonic acid groups for ion conductive polymer membranes, binders, and fuel cells)

IT Polymer blends
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(preparation of crosslinkable aromatic resins having protonic acid groups for ion conductive polymer membranes, binders, and fuel cells)

IT Electrodes
(preparation of crosslinkable aromatic resins having protonic acid groups for ion conductive polymer membranes, binders, electrodes, and fuel cells)

IT Polyoxyarylenes
RL: TEM (Technical or engineered material use); USES (Uses)
(protonic acid-containing; preparation of crosslinkable aromatic resins having protonic acid groups for ion conductive polymer membranes, binders, and fuel cells)

IT Polyoxyphenylenes
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(sodium sulfonated; preparation of crosslinkable aromatic resins having protonic acid groups for ion conductive polymer membranes, binders, and fuel cells)

IT Polybenzoxazoles
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(sulfonated; preparation of crosslinkable aromatic resins having protonic acid groups for ion conductive polymer membranes, binders, and fuel cells)

IT 25134-01-4DP, Poly(2,6-dimethyl-1,4-phenylene oxide), sodium sulfonated
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(assumed monomers; preparation of crosslinkable aromatic resins having protonic acid groups for ion conductive polymer membranes, binders, and fuel cells)

IT 31694-16-3DP, PEEK 450P, sodium sulfonated
RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(blend with polyether-polyketone or polybenzoxazole, crosslinked; preparation of crosslinkable aromatic resins having protonic acid groups for ion conductive polymer membranes, binders, and fuel cells)

IT 515144-49-7P 515144-50-0P 515144-51-1P 515144-53-3P
RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(blend with polyimide; preparation of crosslinkable aromatic resins

having protonic acid groups for ion conductive polymer membranes, binders, and fuel cells)

IT 29658-28-4P 32034-67-6P
RL: IMF (Industrial manufacture); PREP (Preparation)
(blend with protonic acid group containing polymer; preparation of crosslinkable aromatic resins having protonic acid groups for ion conductive polymer membranes, binders, and fuel cells)

IT 87781-17-7P 87792-34-5P
RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(blend with protonic acid group containing polymer; preparation of crosslinkable aromatic resins having protonic acid groups for ion conductive polymer membranes, binders, and fuel cells)

IT 25897-65-8P, Bisphenol A-4,4'-difluorobenzophenone copolymer
28825-50-5P, 3,3',4,4'-Benzophenonetetracarboxylic dianhydride-3,3'-Diaminodiphenylsulfone copolymer
41205-96-3P 54571-77-6P 127583-87-3P 127669-56-1P
515144-54-4P 515144-55-5P
RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(blend with protonic acid group-containing polymer; preparation of crosslinkable aromatic resins having protonic acid groups for ion conductive polymer membranes, binders, and fuel cells)

IT 515144-56-6P 515144-57-7P
RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(blend with protonic acid group-containing polymers; preparation of crosslinkable aromatic resins having protonic acid groups for ion conductive polymer membranes, binders, and fuel cells)

IT 108-31-6DP, Maleic anhydride, reaction products with protonic acid group-containing polymers 405-99-2DP, 4-Fluorostyrene, reaction products with sulfonated polymers 620-18-8DP, 3-Vinylphenol, reaction products with sulfonated polymers 1076-99-9DP, 4-Allylbenzoic acid, reaction products with protonic acid group-containing polymers 1120-71-4DP, Propanesultone, reaction products with aromatic polyether-polyketones 1745-89-7DP, reaction products with sulfonated polymers 20161-52-8DP, reaction products with sulfonated polymers 102501-86-0DP, 2-Allylphenol-2,6-dimethylphenol copolymer, sodium sulfonated 146673-88-3DP, reaction products with ethylenically unsatd. compds. 163395-54-8DP, reaction products with protonic acid group-containing polymers 210531-46-7DP, reaction products with ethenylphenol 342047-78-3DP, reaction products with ethenylphenol 342047-79-4DP, reaction products with ethenylphenol 515144-35-1P 515144-36-2P 515144-37-3P 515144-38-4P 515144-39-5P 515144-40-8P 515144-41-9P 515144-42-0P 515144-44-2DP, sulfonated 515144-45-3DP, sulfonated 515144-47-5P 515144-48-6P 515144-51-1DP, reaction products with ethenylbenzoyl chloride 515144-53-3DP, reaction products with ethenylbenzoyl chloride 515144-58-8P 515144-59-9P 515144-66-8DP, reaction products with ethenylphenol 515144-67-9DP, reaction products with ethenylphenol 515144-68-0DP, reaction products with ethenylphenol 515144-69-1DP, reaction products with ethenylphenol 515144-70-4DP, reaction products with ethylenically unsatd. compds. 515144-71-5DP, reaction products with monoanhydride compds. 515144-72-6DP, reaction products with maleic anhydride 515144-73-7DP, reaction products with allylbenzoic acid, sulfonated 515144-74-8DP, reaction products with allylbenzoic acid, sulfonated 515144-75-9DP, reaction

products with ethylenically unsatd. compds.
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(crosslinked; preparation of crosslinkable aromatic resins having protonic acid groups for ion conductive polymer membranes, binders, and fuel cells)

IT 51698-33-0P 210531-45-6P 515144-46-4P
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(monomer; preparation of crosslinkable aromatic resins having protonic acid groups for ion conductive polymer membranes, binders, and fuel cells)

IT 515144-24-8P 515144-34-0P
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(optionally crosslinked; preparation of crosslinkable aromatic resins having protonic acid groups for ion conductive polymer membranes, binders, and fuel cells)

IT 515144-43-1DP, sulfonated
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polybenzoxazole, crosslinked; preparation of crosslinkable aromatic resins having protonic acid groups for ion conductive polymer membranes, binders, and fuel cells)

IT 24938-67-8DP, Poly(2,6-dimethyl-1,4-phenylene oxide), sodium sulfonated 267877-35-0DP, reaction products with ethenylphenol
515144-25-9P 515144-26-0P 515144-27-1P 515144-28-2P
515144-29-3P 515144-30-6P 515144-31-7P 515144-32-8P
515144-33-9P 515144-60-2P 515144-61-3P 515144-62-4P
515144-64-6DP, sulfonated 515144-65-7DP, sulfonated
515811-98-0P
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(preparation of crosslinkable aromatic resins having protonic acid groups for ion conductive polymer membranes, binders, and fuel cells)

IT 80-05-7, 2,2-Bis(4-hydroxyphenyl)propane, reactions 80-07-9, 4,4'-Dichlorodiphenylsulfone 345-92-6, 4,4'-Difluorobenzophenone
RL: RCT (Reactant); RACT (Reactant or reagent)
(reactant in monomer preparation; preparation of crosslinkable aromatic resins having protonic acid groups for ion conductive polymer membranes, binders, and fuel cells)

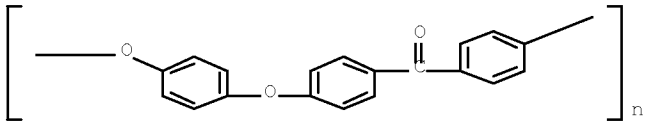
REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L73 ANSWER 12 OF 35 HCAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 2003:110400 HCAPLUS Full-text
DOCUMENT NUMBER: 139:7755
TITLE: A comparative study of the electric transport of ions and water in sulfonated cation-exchange polymeric membranes of the new generation
AUTHOR(S): Berezina, N. P.; Komkova, E. N.
CORPORATE SOURCE: Kuban State University, Krasnodar, 350040, Russia
SOURCE: Colloid Journal (Translation of Kolloidnyi Zhurnal) (2003), 65(1), 1-10
CODEN: CJRSEQ; ISSN: 1061-933X
PUBLISHER: MAIK Nauka/Interperiodica Publishing
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 13 Feb 2003
AB This work presents the results of the studies concerning the elec. transport of ions and water through sulfonated cation-exchange membranes based on a polyether sulfone and poly(ether-ether-ketone). The concentration dependences of the water absorption capacity, specific conductance, and diffusion and electroosmotic permeabilities

measured in NaCl solns. are compared to the analogous characteristics of some com. membranes under the same exptl. conditions. The model concepts concerning the permeability of ion-conducting membranes as disperse systems are found to be applicable for interpreting the set of the elec. transport properties of the membrane samples studied. A cluster-channel type of the membrane structure is identified. The polymeric films are shown to possess characteristics comparable to those of com. ion-exchange membrane samples and can produce polymer compns. with an optimum set of elec. transport properties.

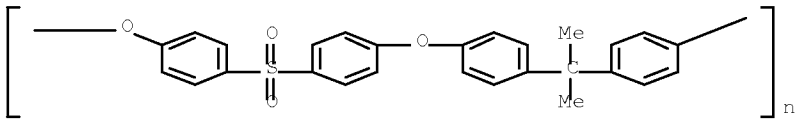
IT 31694-16-3D, PEEK, sulfonated
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(1; comparative study of elec. transport of ions and water in sulfonated cation-exchange polymeric membranes)

RN 31694-16-3 HCAPLUS
CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)

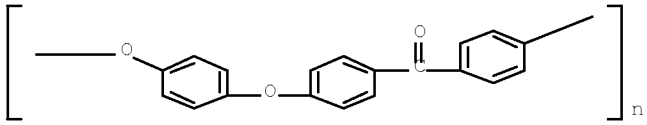


IT 25135-51-7D, sulfonated 31694-16-3
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(comparative study of elec. transport of ions and water in sulfonated cation-exchange polymeric membranes)

RN 25135-51-7 HCAPLUS
CN Poly[oxy-1,4-phenylenesulfonyl-1,4-phenyleneoxy-1,4-phenylene(1-methylethylidene)-1,4-phenylene] (CA INDEX NAME)



RN 31694-16-3 HCAPLUS
CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)



CC 38-3 (Plastics Fabrication and Uses)

IT Polyketones
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(polyether-, aromatic, sulfonated; comparative

study of elec. transport of ions and water in sulfonated cation-exchange polymeric membranes)

IT Polyethers, uses
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(polyketone-, aromatic, sulfonated; comparative study of elec. transport of ions and water in sulfonated cation-exchange polymeric membranes)

IT 31694-16-3D, PEEK, sulfonated
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(1; comparative study of elec. transport of ions and water in sulfonated cation-exchange polymeric membranes)

IT 25135-51-7D, sulfonated 31694-16-3
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(comparative study of elec. transport of ions and water in sulfonated cation-exchange polymeric membranes)

REFERENCE COUNT: 46 THERE ARE 46 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L73 ANSWER 13 OF 35 HCAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 2003:33836 HCAPLUS Full-text
DOCUMENT NUMBER: 138:90987
TITLE: Heat-resistant, ion-conductive aromatic polyethers and their moldings and films
INVENTOR(S): Kitamura, Kota; Tatemori, Hiroshi; Sakaguchi, Yoshimitsu; Hamamoto, Shiro; Nakao, Junko; Takase, Satoshi
PATENT ASSIGNEE(S): Toyobo Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003012795	A	20030115	JP 2002-113686	20020416
JP 4161249	B2	20081008		
PRIORITY APPLN. INFO.:			JP 2001-126196 A	20010424

ED Entered STN: 15 Jan 2003
AB The aromatic polyethers, useful for polymer electrolytes, are prepared by polymerizing substantially equimolar blends of divalent phenols with dihalogenobenzenoid compds. in organic high-polar solvents in the presence of alkali metal carbonates and/or bicarbonates, wherein the polyethers have on o-position of ether bonds ≥0.1-equivalent (on ether bonds) acidic groups and other substituents. Thus, 3,3'-disulfo-4,4'-dichlorodiphenyl sulfone disodium salt 2.456, 4,4'-dichlorodiphenyl sulfone 2.783, and 3,3'-dimethyl-4,4'-dihydroxydiphenyl sulfone 2.783 g were copolymd. at 190° in PhMe in the presence of K2CO3 to give a polymer with intrinsic viscosity (0.5 g/dL NMP, 30°) 0.23 dL/g, Tg 230°, and ion-exchange equivalent 1.43 mmol/g, water absorption of the film 31% after 1 days in distilled water at room temperature

IT 483995-42-2P 483995-45-5P 483995-47-7P
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(heat-resistant, ion-conductive aromatic polyethers and their moldings and films)

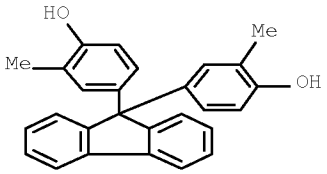
RN 483995-42-2 HCAPLUS

CN Benzenesulfonic acid, 3,3'-sulfonylbis[6-chloro-, disodium salt, polymer with 4,4'-(9H-fluoren-9-ylidene)bis[2-methylphenol] and 1,1'-sulfonylbis[4-chlorobenzene] (9CI) (CA INDEX NAME)

CM 1

CRN 88938-12-9

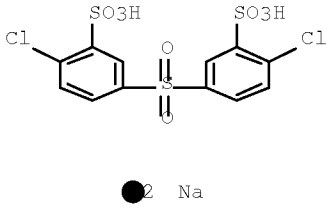
CMF C27 H22 O2



CM 2

CRN 51698-33-0

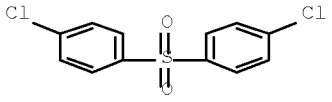
CMF C12 H8 Cl2 O8 S3 . 2 Na



CM 3

CRN 80-07-9

CMF C12 H8 Cl2 O2 S

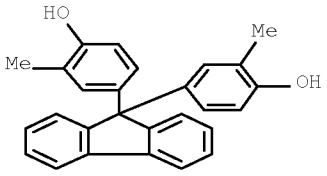


RN 483995-45-5 HCAPLUS

CN Benzenesulfonic acid, 3,3'-sulfonylbis[6-chloro-, disodium salt, polymer with 4,4'-(9H-fluoren-9-ylidene)bis[2-methylphenol], 4,4'-(9H-fluoren-9-ylidene)bis[phenol] and 1,1'-sulfonylbis[4-chlorobenzene] (9CI) (CA INDEX NAME)

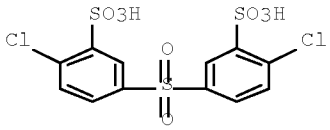
CM 1

CRN 88938-12-9
CMF C27 H22 O2



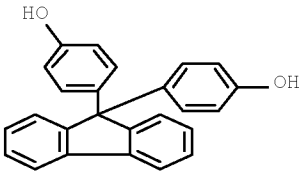
CM 2

CRN 51698-33-0
CMF C12 H8 Cl2 O8 S3 . 2 Na



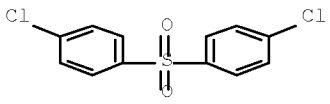
CM 3

CRN 3236-71-3
CMF C25 H18 O2



CM 4

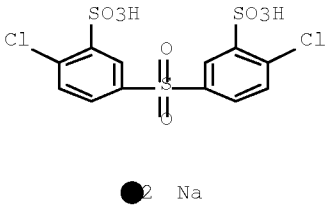
CRN 80-07-9
CMF C12 H8 Cl2 O2 S



RN 483995-47-7 HCAPLUS
CN Benzenesulfonic acid, 3,3'-sulfonylbis[6-chloro-, disodium salt, polymer with 4,4'-(9H-fluoren-9-ylidene)bis[phenol], 1,1'-sulfonylbis[4-chlorobenzene] and 1,1'-sulfonylbis[3,4-dichlorobenzene] (9CI) (CA INDEX NAME)

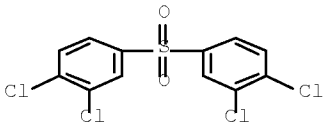
CM 1

CRN 51698-33-0
CMF C12 H8 Cl2 O8 S3 . 2 Na



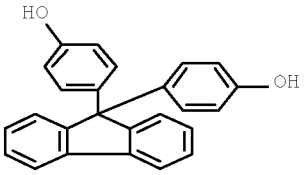
CM 2

CRN 22588-79-0
CMF C12 H6 Cl4 O2 S



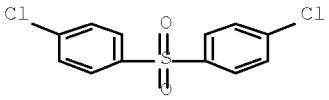
CM 3

CRN 3236-71-3
CMF C25 H18 O2



CM 4

CRN 80-07-9
CMF C12 H8 Cl2 O2 S



IC ICM C08G065-40
ICS C08J005-00; C08L071-08
CC 38-3 (Plastics Fabrication and Uses)
Section cross-reference(s): 52
ST arom polyether heat resistance ion conductive; dihalogenobenzenoid substitution arom polyether heat resistance; film arom polyether ion conductive; molding arom polyether ion conductive ; polysulfone arom heat resistance ion conductive
IT Cardo polymers
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(aromatic polyether-polysulfones; heat-resistant, ion-conductive arom . polyethers and their moldings and films)
IT Polyethers, uses
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(aromatic; heat-resistant, ion-conductive aromatic polyethers and their moldings and films)
IT Heat-resistant materials
Ion exchange membranes
(heat-resistant, ion-conductive aromatic polyethers and their moldings and films)
IT Polyelectrolytes
(heat-resistant, ion-conductive aromatic polyethers and their moldings and films for)
IT Polysulfones, uses
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyether-, aromatic, cardo-; heat-resistant, ion-conductive aromatic polyethers and their moldings and films)
IT Polysulfones, uses
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyether-, aromatic; heat-resistant, ion-conductive aromatic polyethers and their moldings and films)
IT Polyethers, uses
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polysulfone-, aromatic, cardo-; heat-resistant, ion-conductive aromatic polyethers and their moldings and films)
IT Polyethers, uses
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polysulfone-, aromatic; heat-resistant, ion-conductive aromatic polyethers and their moldings and films)
IT 483995-29-5P 483995-32-0P 483995-35-3P 483995-39-7P
483995-42-2P 483995-45-5P 483995-47-7P

483995-50-2P
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(heat-resistant, ion-conductive aromatic polyethers and their moldings and films)

IT 80-07-9, 4,4'-Dichlorodiphenyl sulfone
RL: RCT (Reactant); RACT (Reactant or reagent)
(monomer preparation from; heat-resistant, ion-conductive aromatic polyethers and their moldings and films)

IT 51698-33-0P
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(monomer; heat-resistant, ion-conductive aromatic polyethers and their moldings and films)

L73 ANSWER 14 OF 35 HCAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 2002:778349 HCAPLUS Full-text
DOCUMENT NUMBER: 137:297409
TITLE: Solid polymer electrolyte fuel cell
INVENTOR(S): Asano, Yoichi; Nanaumi, Masaaki; Sohma, Hiroshi; Kanaoka, Nagayuki; Saito, Nobuhiro; Andou, Keisuke; Fukuda, Kaoru; Matsuo, Junji
PATENT ASSIGNEE(S): Honda Giken Kogyo Kabushiki Kaisha, Japan
SOURCE: PCT Int. Appl., 94 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002080294	A1	20021010	WO 2002-JP3256	20020401
W: CA, DE, US			<--	
JP 2002298868	A	20021011	JP 2001-97801	20010330
			<--	
JP 3779171	B2	20060524		
JP 2002298856	A	20021011	JP 2001-97803	20010330
			<--	
JP 2002298857	A	20021011	JP 2001-97804	20010330
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JP 2002298858	A	20021011	JP 2001-97805	20010330
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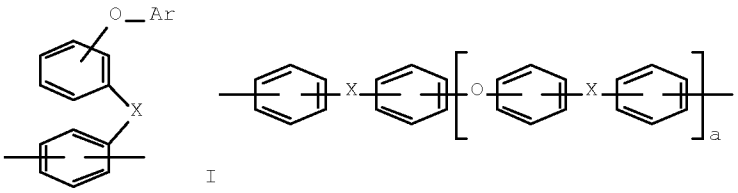
JP 2002298855	A	20021011	JP 2001-97806	20010330
			<--	
JP 2002305007	A	20021018	JP 2001-106648	20010405
			<--	
CA 2442633	A1	20021010	CA 2002-2442633	

				2002 0401 <--
DE 10296599	T5	20040422	DE 2002-10296599	2002 0401 <--
US 20040121211	A1	20040624	US 2003-473388	2003 0930 <--
US 7208242	B2	20070424		
PRIORITY APPLN. INFO.:			JP 2001-97801 A	2001 0330 <--
			JP 2001-97803 A	2001 0330 <--
			JP 2001-97804 A	2001 0330 <--
			JP 2001-97805 A	2001 0330 <--
			JP 2001-97806 A	2001 0330 <--
			JP 2001-106648 A	2001 0405 <--
			WO 2002-JP3256 W	2002 0401 <--

ED Entered STN: 11 Oct 2002

GI



I II

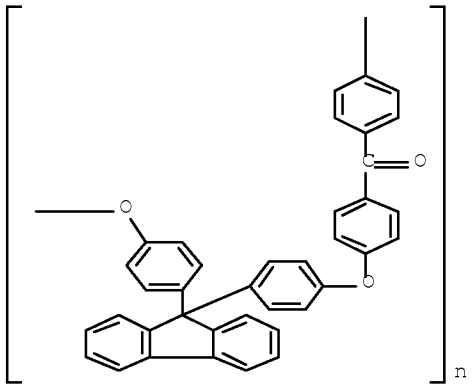
AB The fuel cell has a polymer electrolyte membrane held between a cathode and an anode, both having an ion conductor containing catalyst layer; where the electrolyte or the ion conductor in either or both electrodes is a sulfonated polyarylene having sulfonic acid group at side chains. Preferably, the electrolyte has a kinematic viscoelasticity 109-1011 Pa at 110°, and is a copolymer containing 30-95 mol% I [Ar = aryl group, X = -CO-, -CONH-, -(CF2)1-10-, -C(CF3)-, -COO-, -SO-, or -SO2-] and 5-30 mol% II (X may be different from each other, a = integer 0-3); and the ion conductive binder in the electrode has a kinematic viscoelasticity lower than that of the electrolyte, and is a copolymer containing 50-70mol% I and 30-560 mol% II (a = integer ≥2).

IT 41206-07-9D, sulfonated

RL: DEV (Device component use); PRP (Properties); USES (Uses)
(structure and kinematic viscoelasticity of sulfonated polyarylenes for electrolyte and catalyst layer binders for fuel cells)

RN 41206-07-9 HCAPLUS

CN Poly(oxy-1,4-phenylene-9H-fluoren-9-ylidene-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)



IC ICM H01M008-02
ICS H01M004-86

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST fuel cell sulfonated polyarylene electrolyte kinematic viscoelasticity; ion conductive binder kinematic viscoelasticity fuel cell electrode

IT Polyketones
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(polyether-, aromatic, sulfonated; structure and kinematic viscoelasticity of sulfonated polyarylenes for electrolyte and catalyst layer binders for fuel cells)

IT Polyethers, uses
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(polyketone-, aromatic, sulfonated; structure and kinematic viscoelasticity of sulfonated polyarylenes for electrolyte and catalyst layer binders for fuel cells)

IT 7440-06-4, Platinum, uses 41206-07-9D, sulfonated
197246-14-3
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(structure and kinematic viscoelasticity of sulfonated polyarylenes for electrolyte and catalyst layer binders for fuel cells)

REFERENCE COUNT: 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L73 ANSWER 15 OF 35 HCAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2002:507113 HCAPLUS Full-text

DOCUMENT NUMBER: 138:56948

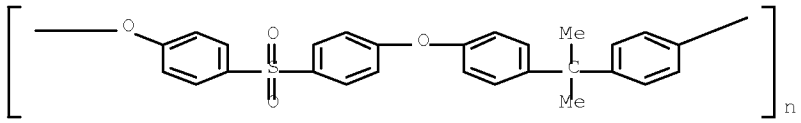
TITLE: Application of different types of polyaryl-blend-membranes in DMFC

AUTHOR(S): Kerres, J.; Zhang, W.; Jorissen, L.; Gogel, V.

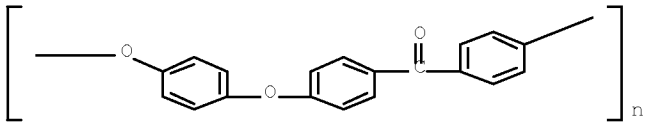
CORPORATE SOURCE: Institut fur Chemische Verfahrenstechnik (ICVT), Universitat Stuttgart, Stuttgart, Germany

SOURCE: Journal of New Materials for Electrochemical Systems (2002), 5(2), 97-107
CODEN: JMESFQ; ISSN: 1480-2422

PUBLISHER: Journal of New Materials for Electrochemical Systems
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 08 Jul 2002
AB In this comparative study, the preparation and characterization and the direct methanol fuel cell (DMFC) application of ionically, covalently, and covalent-ionically crosslinked polyaryl-blend membranes is described. The proton-conductive component of the blend membranes consists of sulfonated poly(etherketones) (sPEK). Ionic crosslinked membranes were formed by mixing sPEK and two different basic PSU polymers, and covalently cross-linked membranes were prepared by mixing of sPEK with sulfonated PSU, where the covalent cross-links were formed by sulfinate-alkylation with 1,4-diiodobutane. Covalently and ionically crosslinked blend membranes were formed by mixing sPEK with sulfonated PSU and a basic PSU polymer, where the crosslinking took place by tertiary basic N and sulfinate alkylation with α, o-diiodobutane. The polyaryl-blend membranes showed thermal stabilities between 250 and 270°. The covalently and the ionically crosslinked membranes show a homogeneous blend morphol., while the covalent-ionically crosslinked membrane was microphase-separated The differently crosslinked membranes showed similar proton- conductivity and ion-exchange capacity but different swelling behavior at T=90°: the swelling degree (SW) of the covalently cross-linked membrane was only 50% of the SW of the two other membranes. The DMFC performance of the differently cross-linked membranes was similar and comparable with that of Nafion 105, although the MeOH permeability of the polyaryl-blend membranes was a factor 2 to 2.4 lower than that of Nafion 105. A better performance of the polyaryl-blend membranes was most probably prevented by a bad connection between recast Nafion-containing electrodes and the membranes.
IT 25135-51-7D, P 1800, sulfonated, ion-exchanged
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(covalently- or ionically-crosslinked; prepns. of sulfonated ionomer blended membranes for use in direct methanol fuel cells)
RN 25135-51-7 HCAPLUS
CN Poly[oxy-1,4-phenylenesulfonyl-1,4-phenyleneoxy-1,4-phenylene(1-methylethylidene)-1,4-phenylene] (CA INDEX NAME)



IT 31694-16-3D, PEEK, sulfonated, ion-exchanged
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(crosslinked; prepns. of sulfonated ionomer blended membranes for use in direct methanol fuel cells)
RN 31694-16-3 HCAPLUS
CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)



CC 38-3 (Plastics Fabrication and Uses)
IT Polyketones
Polysulfones, uses
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(polyether-, aromatic, sulfonated; prepns. of sulfonated ionomer blended membranes for use in direct methanol fuel cells)
IT Polyethers, uses
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(polyketone-, aromatic, sulfonated; prepns. of sulfonated ionomer blended membranes for use in direct methanol fuel cells)
IT Polyethers, uses
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(polysulfone-, aromatic, sulfonated; prepns. of sulfonated ionomer blended membranes for use in direct methanol fuel cells)
IT 25135-51-7D, P 1800, sulfonated, ion-exchanged
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(covalently- or ionically-crosslinked; prepns. of sulfonated ionomer blended membranes for use in direct methanol fuel cells)
IT 31694-16-3D, PEEK, sulfonated, ion-exchanged
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(crosslinked; prepns. of sulfonated ionomer blended membranes for use in direct methanol fuel cells)
REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L73 ANSWER 16 OF 35 HCAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 2001:846076 HCAPLUS Full-text
DOCUMENT NUMBER: 136:102739
TITLE: Synthesis of highly sulfonated poly(arylene ether sulfone) random (statistical) copolymers via direct polymerization
AUTHOR(S): Wang, Feng; Hickner, Michael; Ji, Qing; Harrison, William; Mecham, Jeffrey; Zawodzinski, Thomas A.; McGrath, James E.
CORPORATE SOURCE: Department of Chemistry and Materials Research Institute (0344), Virginia Polytechnic Institute and State University, Blacksburg,

VA, 24061, USA
SOURCE: Macromolecular Symposia (2001), 175(Polymerization Processes and Polymer Materials II), 387-395
CODEN: MSYMEC; ISSN: 1022-1360
PUBLISHER: Wiley-VCH Verlag GmbH
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 21 Nov 2001

AB Novel biphenol-based wholly aromatic poly (arylene ether sulfones) containing pendant sulfonate groups were prepared by direct aromatic nucleophilic substitution polycondensation of disodium 3,3'-disulfonate-4,4'-dichlorodiphenyl sulfone (SDCDPS), 4,4'-dichlorodiphenylsulfone (DCDPS) and biphenol. Copolymn. proceeded quant. to high mol. weight in N-methyl-2-pyrrolidinone at 190°C in the presence of anhydrous potassium carbonate. Tough membranes were successfully cast from the control and the copolymers, which had a SDCDPS/DCDPS mole ratio of either 40:60 or 60:40 using N,N-dimethylactamide; the 100% SDCDPS homopolymer was water soluble Short-term aging (30 min) indicates that the desired acid form membranes are stable to 220°C in air and conductivity values at 25°C of 0.110 (40%) and 0.170 S/cm (60%) were measured, which are comparable to or higher than the state-of-the art fluorinated copolymer Nafion 1135 control. The new copolymers, which contain ion conductivity sites on deactivated rings, are candidates as new polymeric electrolyte materials for proton exchange membrane (PEM) fuel cells. Further research comparing their membrane behavior to post-sulfonated systems is in progress.

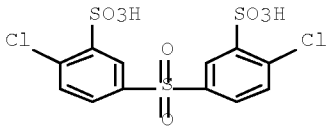
IT 267877-35-0DP, reaction products with acids
389600-31-1DP, reaction products with acids
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(synthesis of highly sulfonated poly(arylene ether sulfone) via direct polymerization)

RN 267877-35-0 HCAPLUS

CN Benzenesulfonic acid, 3,3'-sulfonylbis[6-chloro-, sodium salt (1:2), polymer with [1,1'-biphenyl]-4,4'-diol and 1,1'-sulfonylbis[4-chlorobenzene] (CA INDEX NAME)

CM 1

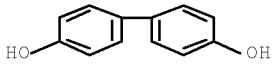
CRN 51698-33-0
CMF C12 H8 Cl2 O8 S3 . 2 Na



2 Na

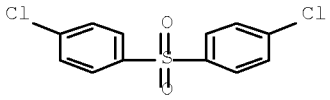
CM 2

CRN 92-88-6
CMF C12 H10 O2



CM 3

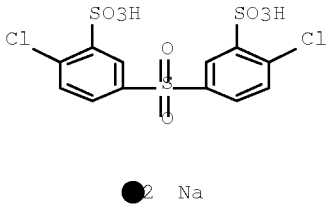
CRN 80-07-9
CMF C12 H8 Cl2 O2 S



RN 389600-31-1 HCAPLUS
CN Benzenesulfonic acid, 3,3'-sulfonylbis[6-chloro-, sodium salt (1:2), polymer with [1,1'-biphenyl]-4,4'-diol (CA INDEX NAME)

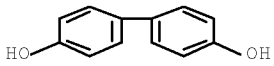
CM 1

CRN 51698-33-0
CMF C12 H8 Cl2 O8 S3 . 2 Na



CM 2

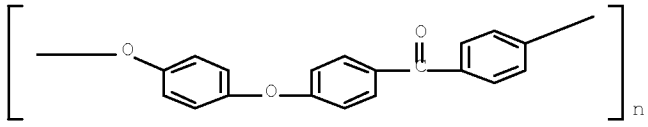
CRN 92-88-6
CMF C12 H10 O2



CC 35-5 (Chemistry of Synthetic High Polymers)
IT Polysulfones, preparation
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(polyether-, aromatic; synthesis of highly sulfonated poly(arylene ether sulfone) via direct polymerization)
IT Polyethers, preparation
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(polysulfone-, aromatic; synthesis of highly sulfonated poly(arylene ether sulfone) via direct polymerization)
IT Electric conductivity
Viscosity
(synthesis of highly sulfonated poly(arylene ether sulfone) via

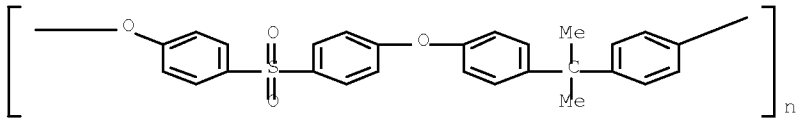
direct polymerization)
IT 267877-35-0DP, reaction products with acids
389600-31-1DP, reaction products with acids
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(synthesis of highly sulfonated poly(arylene ether sulfone) via direct polymerization)
REFERENCE COUNT: 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L73 ANSWER 17 OF 35 HCAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 2001:169502 HCAPLUS Full-text
DOCUMENT NUMBER: 134:353824
TITLE: Synthesis of novel engineering polymers containing basic side groups and their application in acid-base polymer blend membranes
AUTHOR(S): Kerres, J.; Ullrich, A.
CORPORATE SOURCE: Universitat Stuttgart, Institut fur Chemische Verfahrenstechnik, Stuttgart, D-70199, Germany
SOURCE: Separation and Purification Technology (2001), 22 and 23(1-3), 1-15
CODEN: SPUTFP; ISSN: 1383-5866
PUBLISHER: Elsevier Science B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 12 Mar 2001
AB New modified PSU Udel containing N-basic side groups like pyridine and dimethylamino groups have been developed. The modified PSU was synthesized via (i) lithiation of PSU ortho to the sulfone bridge and (ii) reaction of the lithiated PSU with aromatic ketones like 2,2'-bipyridylketone, 4,4'-dimethylaminobenzophenone, aromatic aldehydes like 2-, 3-, and 4-pyridinealdehyde, and 4-N,N-diethylaminobenzaldehyde, and aromatic carboxylic acid esters like isonicotinic acid Et ester and 4-N,N-dimethylaminobenzoic acid Et ester. The basic PSU polymers were characterized via NMR, elemental anal., and thermogravimetry (TGA). Selected basic polymers were mixed with poly(etheretherketone) (PEEK) sulfonic acid to yield polymeric acid-base blends. The obtained blend membranes were characterized in terms of ionic conductivity by impedance spectroscopy, in terms of morphol. by transmission electron microscopy (TEM), and in terms of thermal stability by TGA. The acid-base blends show good ionic conductivities at ion-exchange capacities of ≥ 1 meq./g, and good thermal stabilities. The TEM investigations yielded the result that the acid-base-blends are miscible-no polymer-microphase separation could be observed
IT 31694-16-3D, PEEK, sulfonated
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(synthesis of novel engineering polymers containing basic side groups and application in acid-base polymer blend membranes)
RN 31694-16-3 HCAPLUS
CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)



IT 25135-51-7DP, Udel, lithiated, reaction products with aromatic bases
RL: POF (Polymer in formulation); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(synthesis of novel engineering polymers containing basic side

groups and application in acid-base polymer blend membranes)
RN 25135-51-7 HCAPLUS
CN Poly[oxy-1,4-phenylenesulfonyl-1,4-phenyleneoxy-1,4-phenylene(1-methylethylidene)-1,4-phenylene] (CA INDEX NAME)



CC 37-3 (Plastics Manufacture and Processing)
IT Polyketones
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(polyether-, aromatic; synthesis of novel engineering polymers containing basic side groups and application in acid-base polymer blend membranes)
IT Polyethers, properties
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(polyketone-, aromatic; synthesis of novel engineering polymers containing basic side groups and application in acid-base polymer blend membranes)
IT 31694-16-3D, PEEK, sulfonated
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(synthesis of novel engineering polymers containing basic side groups and application in acid-base polymer blend membranes)
IT 25135-51-7DP, Udel, lithiated, reaction products with aromatic bases
RL: POF (Polymer in formulation); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(synthesis of novel engineering polymers containing basic side groups and application in acid-base polymer blend membranes)
REFERENCE COUNT: 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L73 ANSWER 18 OF 35 HCAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 1999:317794 HCAPLUS Full-text
DOCUMENT NUMBER: 131:102717
TITLE: How Dendrons Stiffen Polymer Chains: A SANS Study
AUTHOR(S): Foerster, Stephan; Neubert, Ingo; Schlueter, A. Dieter; Lindner, Peter
CORPORATE SOURCE: Max-Planck-Institut fur Kolloid- und Grenzflachenforschung, Potsdam-Golm, D-14424, Germany
SOURCE: Macromolecules (1999), 32(12), 4043-4049
CODEN: MAMOBX; ISSN: 0024-9297
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 25 May 1999
AB The conformation of various polystyrene chains with first (G-1), second (G-2), and third generation (G-3) Frechet-type dendrons at the repeat unit was studied with small-angle neutron scattering. The increased d. of the attached dendrons leads to a systematically greater cross-sectional chain diameter (D). Bulky, high generation dendrons force the polymer backbone out of its all-trans conformation. The measured statistical Kuhn segment length initially increases in proportion to the chain diameter and then to a greater degree due to steric overcrowding and the concomitantly higher bending rigidity. The introduction of charges further leads to chain expansion and the development of interchain correlations. High mol. weight (G-2) chains develop fully

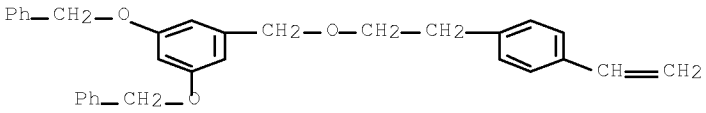
excluded-volume chain properties with a Flory exponent of v = 0.57 and a critical exponent γ = 0.86 which is related to the enhancement of chain configurations with widely separated chain ends.

IT 181365-18-4 220118-09-2 220118-09-2D, deprotected 220118-10-5
RL: PRP (Properties)
(G-1 dendrimer; chain stiffening by dendron increased d. in higher generation dendrimers studied by SANS)

RN 181365-18-4 HCAPLUS
CN Benzene, 1-[[2-(4-ethenylphenyl)ethoxy]methyl]-3,5-bis(phenylmethoxy)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

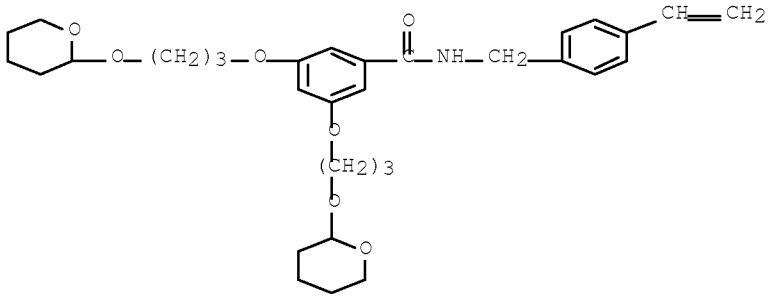
CRN 181365-14-0
CMF C31 H30 O3



RN 220118-09-2 HCAPLUS
CN Benzamide, N-[(4-ethenylphenyl)methyl]-3,5-bis[3-[(tetrahydro-2H-pyran-2-yl)oxy]propoxy]-, homopolymer (9CI) (CA INDEX NAME)

CM 1

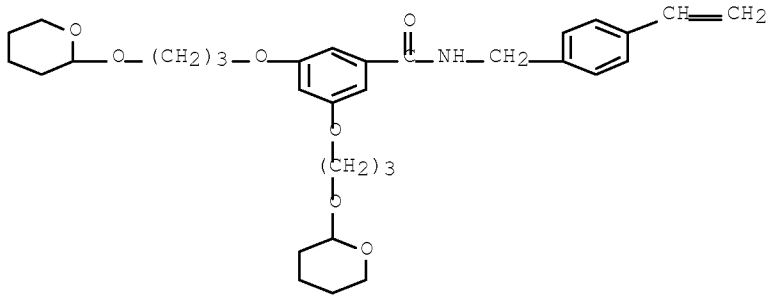
CRN 220118-06-9
CMF C32 H43 N O7



RN 220118-09-2 HCAPLUS
CN Benzamide, N-[(4-ethenylphenyl)methyl]-3,5-bis[3-[(tetrahydro-2H-pyran-2-yl)oxy]propoxy]-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 220118-06-9
CMF C32 H43 N O7

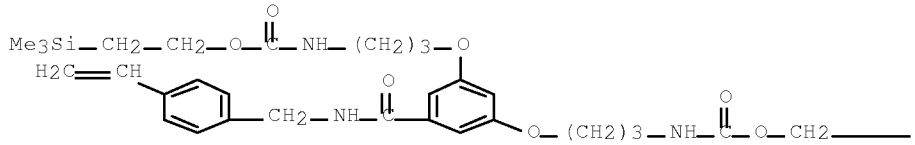


RN 220118-10-5 HCAPLUS
CN Carbamic acid, N,N'-[[5-[[[(4-ethenylphenyl)methyl]amino]carbonyl]-1,3-phenylene]bis(oxy-3,1-propanediyl)]bis-, C,C'-bis[2-(trimethylsilyl)ethyl] ester, homopolymer (CA INDEX NAME)

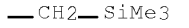
CM 1

CRN 220118-07-0
CMF C34 H53 N3 O7 Si2

PAGE 1-A



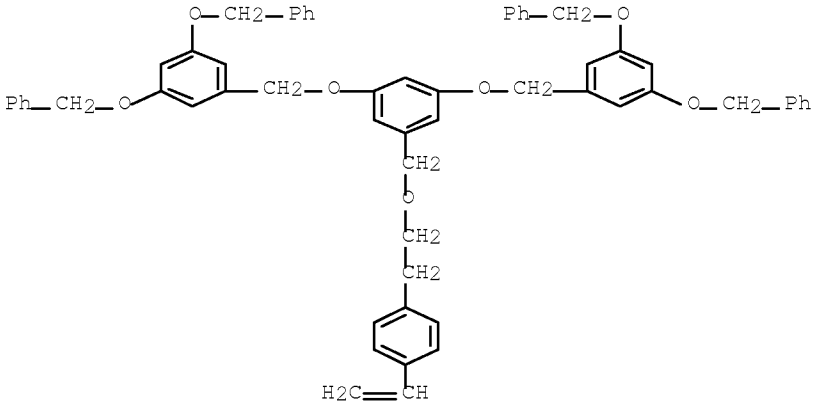
PAGE 1-B



IT 181365-20-8 220118-11-6 220118-11-6D, deprotected
RL: PRP (Properties)
(G-2 dendrimer; chain stiffening by dendron increased d. in higher generation dendrimers studied by SANS)
RN 181365-20-8 HCAPLUS
CN Benzene, 1,3-bis[[3,5-bis(phenylmethoxy)phenyl]methoxy]-5-[[2-(4-ethenylphenyl)ethoxy]methyl]-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 181365-15-1
CMF C59 H54 O7

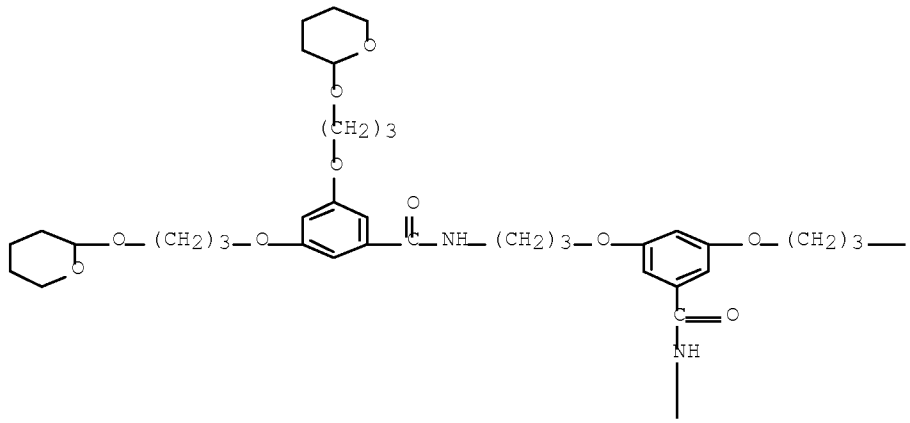


RN 220118-11-6 HCAPLUS
CN Benzamide, 3,5-bis[3-[[3,5-bis[3-[(tetrahydro-2H-pyran-2-yl)oxy]propoxy]benzoyl]amino]propoxy]-N-[(4-ethenylphenyl)methyl]-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 220118-05-8
CMF C68 H93 N3 O17

PAGE 1-A



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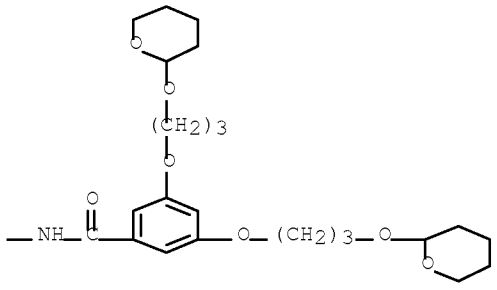

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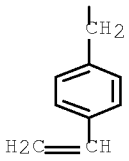
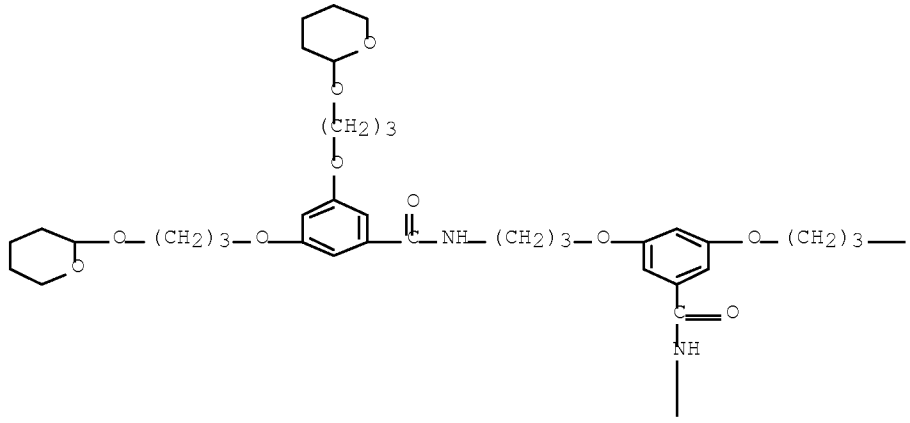


RN 220118-11-6 HCAPLUS
CN Benzamide, 3,5-bis[3-[[3,5-bis[3-[(tetrahydro-2H-pyran-2-yl)oxy]propoxy]benzoyl]amino]propoxy]-N-[(4-ethenylphenyl)methyl]-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 220118-05-8
CMF C68 H93 N3 O17

PAGE 1-A



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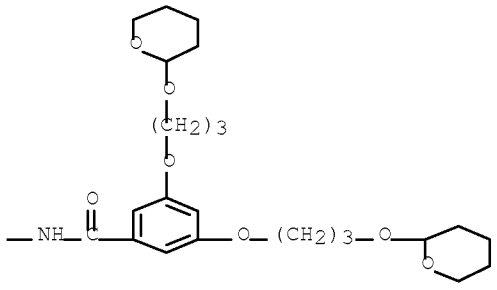
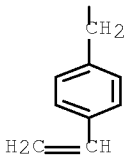


PAGE 2-A

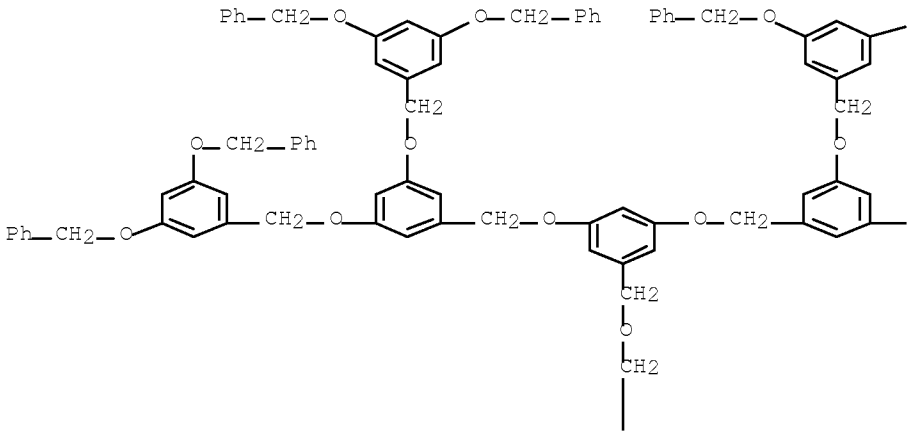


IT 181365-22-0
RL: PRP (Properties)
(G-3 dendrimer; chain stiffening by dendron increased d. in higher generation dendrimers studied by SANS)
RN 181365-22-0 HCAPLUS
CN Benzene, 1,3-bis[[3,5-bis[[3,5-bis(phenylmethoxy)phenyl]methoxy]phenyl]methoxy]-5-[[2-(4-ethenylphenyl)ethoxy]methyl]-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 181365-16-2
CMF C115 H102 O15

PAGE 1-A



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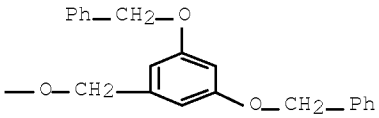

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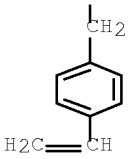

CC 36-2 (Physical Properties of Synthetic High Polymers)

IT Polyethers, properties
Polyethers, properties
RL: PRP (Properties)
(dendrimers; chain stiffening by dendron increased d. in higher generation dendrimers studied by SANS)

IT Polyethers, properties
Polyethers, properties
Polyethers, properties
RL: PRP (Properties)
(polyamide-, dendrimers; chain stiffening by dendron increased d. in higher generation dendrimers studied by SANS)

IT 181365-18-4 220118-09-2 220118-09-2D, deprotected 220118-10-5
RL: PRP (Properties)
(G-1 dendrimer; chain stiffening by dendron increased d. in higher generation dendrimers studied by SANS)

IT 181365-20-8 220118-03-6 220118-11-6 220118-11-6D, deprotected
RL: PRP (Properties)
(G-2 dendrimer; chain stiffening by dendron increased d. in higher generation dendrimers studied by SANS)

IT 181365-22-0
RL: PRP (Properties)
(G-3 dendrimer; chain stiffening by dendron increased d. in higher generation dendrimers studied by SANS)

REFERENCE COUNT: 27 THERE ARE 27 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L73 ANSWER 19 OF 35 HCAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 1999:166547 HCAPLUS Full-text
DOCUMENT NUMBER: 130:224121
TITLE: Composite solid polymer electrolyte membranes and casting or extrusion of a composite membrane
INVENTOR(S): Formato, Richard M.; Kovar, Robert F.; Osenar,

Paul; Landrau, Nelson
PATENT ASSIGNEE(S): Foster-Miller, Inc., USA
SOURCE: PCT Int. Appl., 70 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 4
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9910165	A1	19990304	WO 1998-US17898	1998 0828 <--
W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW				
RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
CA 2300934	A1	19990304	CA 1998-2300934	1998 0828 <--
CA 2300934	C	20080826		
AU 9892101	A	19990316	AU 1998-92101	1998 0828 <--
EP 1021296	A1	20000726	EP 1998-944594	1998 0828 <--
R: DE, FR, GB, IT, SE				
JP 2001514431	T	20010911	JP 2000-507525	1998 0828 <--
US 6248469	B1	20010619	US 1999-261349	1999 0303 <--
CA 2342237	A1	20000420	CA 1999-2342237	1999 0826 <--
WO 2000022684	A2	20000420	WO 1999-US19476	1999 0826 <--
WO 2000022684	A3	20000720		
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AU 2000023415	A	20000501	AU 2000-23415	1999 0826 <--

CA 2342221 A1 20000504 CA 1999-2342221
1999
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WO 2000024796 A1 20000504 WO 1999-US19470
1999
0826
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CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL,
IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV,
MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE,
SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW
RW: GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY,
DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE,
BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG
EP 1115769 A1 20010718 EP 1999-965719
1999
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R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE,
MC, PT, IE, SI, LT, LV, FI, RO
JP 2003503510 T 20030128 JP 2000-578363
1999
0826
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JP 2003528420 T 20030924 JP 2000-576501
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PRIORITY APPLN. INFO.: US 1997-57233P P
1997
0829
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WO 1998-US17898 W
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0828
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US 1999-261349 A
1999
0303
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US 1999-262861 A
1999
0303
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WO 1999-US19470 W
1999
0826
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WO 1999-US19476 W
1999
0826
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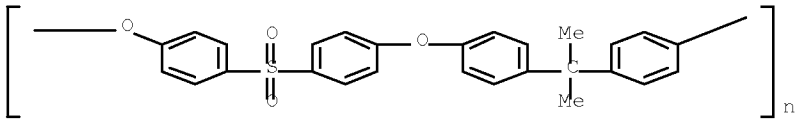
ED Entered STN: 15 Mar 1999

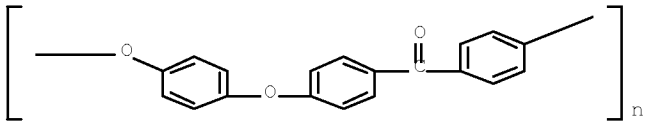
AB Composite solid polymer electrolyte membranes (SPEMs) include a porous polymer substrate interpenetrated with an ion- conducting material. The SPEMs are useful in electrochem. applications, including fuel cells, electrode separators, and electrodialysis. Thus, polybenzoxazole substrate film (solvent exchanged into NMP) was added to 5% solution containing sulfonated (75%) Radel R (I) and after 12 h placed into 20% solution of sulfonated I, and the composite film isolated, stretched, dried, and solvent extracted to give a film having resistance 0.056 Ω-cm2; vs. 0.203 for a Nafion 117 control film.

IT 25135-51-7DP, Udel, sulfonated
RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP

(Preparation); USES (Uses)
(in composite solid polymer electrolyte membranes)
RN 25135-51-7 HCAPLUS
CN Poly[oxy-1,4-phenylenesulfonyl-1,4-phenyleneoxy-1,4-phenylene(1-methylethylidene)-1,4-phenylene] (CA INDEX NAME)



IT 31694-16-3, PEEK
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(in composite solid polymer electrolyte membranes)
RN 31694-16-3 HCAPLUS
CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)



IC ICM B32B003-26
ICS B01D021-28; B01D024-00; B05D005-00; H01M008-10
CC 38-3 (Plastics Fabrication and Uses)
Section cross-reference(s): 52, 66, 72
ST ion conducting material composite electrolyte membrane; porous polybenzoxazole film composite electrolyte membrane; fuel cell composite electrolyte membrane; electrodialysis composite electrolyte membrane; sulfonated polyether sulfone composite electrolyte membrane
IT Heat-resistant materials
Membranes, nonbiological
(blend of porous polymer substrate and ion conducting material; composite solid polymer electrolyte membranes with low resistance, good strength and heat resistance)
IT Polymer blends
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(blend of porous polymer substrate and ion conducting material; composite solid polymer electrolyte membranes with low resistance, good strength and heat resistance)
IT Polysulfones, uses
Polysulfones, uses
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(polyether-, aromatic; in composite solid polymer electrolyte membranes)
IT Polyethers, uses
Polyethers, uses
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical

or engineered material use); USES (Uses)
(polysulfone-, aromatic; in composite solid polymer electrolyte membranes)

IT 25135-51-7DP, Udel, sulfonated 25667-42-9DP, Ultrason E, sulfonated 27380-27-4DP, Victrex pek, sulfonated 154281-38-6DP, Radel R, sulfonated, sodium salts
RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(in composite solid polymer electrolyte membranes)

IT 24938-64-5, p-Phenylenediamine-terephthalic acid copolymer, sru 25035-37-4, p-Phenylenediamine-terephthalic acid copolymer 25190-62-9, Poly(1,4-phenylene) 27028-97-3, Polyphenylene sulfide sulfone 31694-16-3, PEEK 63496-24-2, Nafion ew 1100
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(in composite solid polymer electrolyte membranes)

REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L73 ANSWER 20 OF 35 HCAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 1998:600307 HCAPLUS Full-text
DOCUMENT NUMBER: 129:284728
ORIGINAL REFERENCE NO.: 129:57877a,57880a
TITLE: Manufacture of electrically insulating polymer films for semiconductor devices
INVENTOR(S): Kosuga, Maki
PATENT ASSIGNEE(S): Oki Electric Industry Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 11 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 10247646	A	19980914	JP 1997-50722	1997 0305
			<--	
JP 3969779	B2	20070905		
PRIORITY APPLN. INFO.:			JP 1997-50722	1997 0305
			<--	

ED Entered STN: 22 Sep 1998
AB The elec. insulating films are manufactured by polymerization as a result of removal of hydrogen halides from (A) aromatic compds. having ≥1 (condensed) benzene rings and ≥1 OH directly linked to the benzene rings and (B) compds. having ≥1 (condensed) benzene rings and ≥1 halogens directly linked to the benzene rings in the presence of basic catalysts at >80°. The Si-free polymers, e.g., 2,2'-bis(1-naphthol)-perfluorobiphenyl copolymer, etc., having 1% weight degradation temperature ≥400° and sp. inductive capacity ≤3.0 are useful for elec. insulating of wirings in ultra large scale integrated circuits.

IT 204764-92-1P, Perfluorobiphenyl-α,α,α',α'-tetrakis(4-hydroxyphenyl)-p-xylene copolymer 214073-56-8P
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(preparation of elec. insulator aromatic polyether films by removal of hydrogen halides from hydroxy-containing aromatic monomers and halogenated aromatic monomers)

RN 204764-92-1 HCAPLUS
CN Phenol, 4,4',4'',4'''-(1,4-phenylenedimethylidyne)tetrakis-, polymer with 2,2',3,3',4,4',5,5',6,6'-decafluoro-1,1'-biphenyl (9CI) (CA INDEX NAME)

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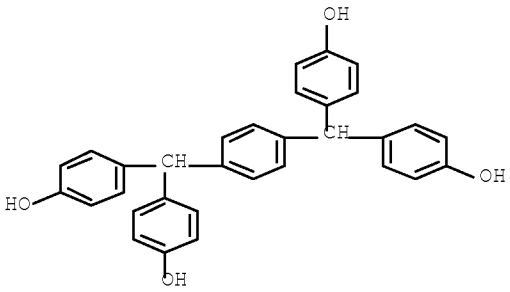
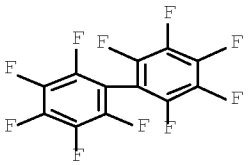
CRN 18066-45-0
CMF C32 H26 O4



CM 2

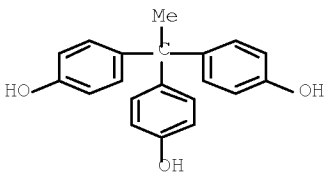
CRN 434-90-2
CMF C12 F10



RN 214079-56-8 HCAPLUS
CN Phenol, 4,4',4''-ethylidynetris-, polymer with octafluoronaphthalene (9CI) (CA INDEX NAME)

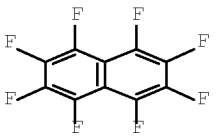
CM 1

CRN 27955-94-8
CMF C20 H18 O3



CM 2

CRN 313-72-4
CMF C10 F8

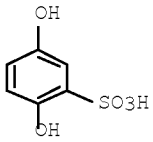


IC ICM H01L021-312
ICS C08L101-02; H01L021-768
CC 76-10 (Electric Phenomena)
Section cross-reference(s): 35, 38
ST elec insulating polymer manuf semiconductor device; condensation polymn removal hydrogen halide; arom polyether elec insulator prepn; perfluorobiphenyl bisnaphthol copolymer polyether elec insulator
IT Polymerization catalysts
(basic compds.; preparation of elec. insulator aromatic polyether films by removal of hydrogen halides from hydroxy-containing aromatic monomers and halogenated aromatic monomers)
IT Diatomite
RL: TEM (Technical or engineered material use); USES (Uses)
(filters; for preparation of elec. insulator aromatic polyether films by removal of hydrogen halides from hydroxy-containing aromatic monomers and halogenated aromatic monomers)
IT Electric insulators
Heat-resistant materials
(preparation of elec. insulator aromatic polyether films by removal of hydrogen halides from hydroxy-containing aromatic monomers and halogenated aromatic monomers)
IT Polyethers, uses
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(preparation of elec. insulator aromatic polyether films by removal of hydrogen halides from hydroxy-containing aromatic monomers and halogenated aromatic monomers)
IT Semiconductor devices
(preparation of elec. insulator aromatic polyether films by removal of hydrogen halides from hydroxy-containing aromatic monomers and halogenated aromatic monomers for)
IT 584-08-7P, Potassium carbonate
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polymerization catalysts; preparation of elec. insulator aromatic polyether films by removal of hydrogen halides from hydroxy-containing aromatic monomers and halogenated aromatic monomers)
IT 204764-92-1P, Perfluorobiphenyl-α,α,α',α'-tetrakis(4-hydroxyphenyl)-p-xylene copolymer 204910-54-3P 214079-56-8P 214079-57-9P, Perfluorobiphenyl-phloroglucinol copolymer
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(preparation of elec. insulator aromatic polyether films by removal of hydrogen halides from hydroxy-containing aromatic monomers and halogenated aromatic monomers)
IT 127-19-5, N,N-Dimethylacetamide
RL: NUU (Other use, unclassified); USES (Uses)
(solvents; preparation of elec. insulator aromatic polyether films by removal of hydrogen halides from hydroxy-containing aromatic monomers and halogenated aromatic monomers)

L73 ANSWER 21 OF 35 HCAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 1997:653816 HCAPLUS Full-text
DOCUMENT NUMBER: 127:307963
ORIGINAL REFERENCE NO.: 127:60243a,60246a
TITLE: Synthesis, properties and potential applications of sulfo-pendent poly(arylene ether ketones)
AUTHOR(S): Venkatasubramanian, N.; Dean, Derrick R.; Price, Gary E.; Arnold, Fred E.
CORPORATE SOURCE: SYSTRAN Corporation, Dayton, OH, 45432, USA
SOURCE: High Performance Polymers (1997), 9(3), 291-307
CODEN: HPPOEX; ISSN: 0954-0083
PUBLISHER: Institute of Physics Publishing
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 15 Oct 1997
AB High mol. weight sulfo-pendent poly(arylene ether ketone) homopolymers and copolymers were synthesized with inherent viscosities ranging from 0.94 dL g-1 to 1.20 dL g-1 and glass transition temps. (Tg) in the range 190°-200°. Their potential use as transparent matrix hosts for second-order NLO (nonlinear optical) chromophores was explored from the point of view of obtaining monodisperse guest-host systems mediated by specific interaction between the sulfonic acid pendant of the polymer host and the basic functionality of the chromophore structure. Homogeneously dispersed, optically clear thin film composites were obtained for aromatic heterocyclic chromophores with electron-rich thienyl, N, N-dialkylamino or N, N-diphenylamino donors and a pyridyl acceptor in their mol. structures.
IT 197246-12-1P, 4,4'-Difluorodiphenyl ketone-hydroquinone 2-potassium sulfone copolymer 197246-15-4P, 1,3-Bis(4-fluorobenzoyl)benzene-hydroquinone 2-potassium sulfone copolymer 197246-20-1P, 4,4'-Difluorodiphenyl ketone-hydroquinone-hydroquinone 2-potassium sulfone copolymer 197246-21-2P, 1,3-Bis(4-fluorobenzoyl)benzene-hydroquinone-hydroquinone 2-potassium sulfone copolymer
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(intermediate; synthesis, properties and potential applications of sulfo-pendent poly(arylene ether ketones))
RN 197246-12-1 HCAPLUS
CN Benzenesulfonic acid, 2,5-dihydroxy-, monopotassium salt, polymer with bis(4-fluorophenyl)methanone (9CI) (CA INDEX NAME)

CM 1

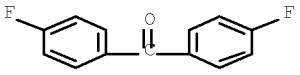
CRN 21799-87-1
CMF C6 H6 O5 S . K



● K

CM 2

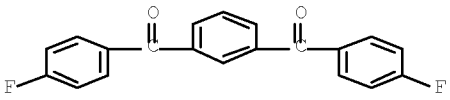
CRN 345-92-6
CMF C13 H8 F2 O



RN 197246-15-4 HCAPLUS
CN Benzenesulfonic acid, 2,5-dihydroxy-, monopotassium salt, polymer with 1,3-phenylenebis[(4-fluorophenyl)methanone] (9CI) (CA INDEX NAME)

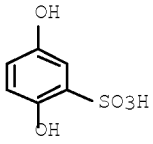
CM 1

CRN 108464-88-6
CMF C20 H12 F2 O2



CM 2

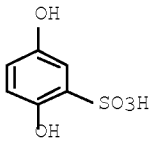
CRN 21799-87-1
CMF C6 H6 O5 S . K



RN 197246-20-1 HCAPLUS
CN Benzenesulfonic acid, 2,5-dihydroxy-, monopotassium salt, polymer with 1,4-benzenediol and bis(4-fluorophenyl)methanone (9CI) (CA INDEX NAME)

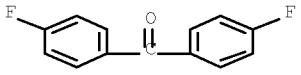
CM 1

CRN 21799-87-1
CMF C6 H6 O5 S . K



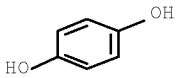
CM 2

CRN 345-92-6
CMF C13 H8 F2 O



CM 3

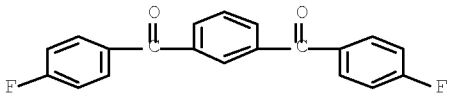
CRN 123-31-9
CMF C6 H6 O2



RN 197246-21-2 HCAPLUS
CN Benzenesulfonic acid, 2,5-dihydroxy-, monopotassium salt, polymer with 1,4-benzenediol and 1,3-phenylenebis[(4-fluorophenyl)methanone] (9CI) (CA INDEX NAME)

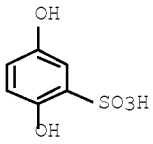
CM 1

CRN 108464-88-6
CMF C20 H12 F2 O2



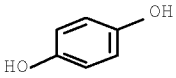
CM 2

CRN 21799-87-1
CMF C6 H6 O5 S . K



CM 3

CRN 123-31-9
CMF C6 H6 O2

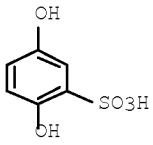


IT 197246-12-1DP, 4,4'-Difluorodiphenyl ketone-hydroquinone 2-potassium sulfone copolymer, acidified 197246-15-4DP, 1,3-Bis(4-fluorobenzoyl)benzene-hydroquinone 2-potassium sulfone copolymer, acidified 197246-20-1DP, 4,4'-Difluorodiphenyl ketone-hydroquinone-hydroquinone 2-potassium sulfone copolymer, acidified 197246-21-2DP, 1,3-Bis(4-fluorobenzoyl)benzene-hydroquinone-hydroquinone 2-potassium sulfone copolymer, acidified
RL: POF (Polymer in formulation); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(synthesis, properties and potential applications of sulfo-pendent poly(arylene ether ketones))

RN 197246-12-1 HCAPLUS
CN Benzenesulfonic acid, 2,5-dihydroxy-, monopotassium salt, polymer with bis(4-fluorophenyl)methanone (9CI) (CA INDEX NAME)

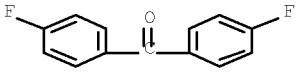
CM 1

CRN 21799-87-1
CMF C6 H6 O5 S . K



CM 2

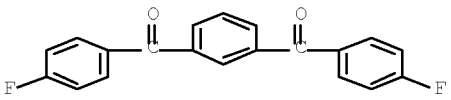
CRN 345-92-6
CMF C13 H8 F2 O



RN 197246-15-4 HCAPLUS
CN Benzenesulfonic acid, 2,5-dihydroxy-, monopotassium salt, polymer with 1,3-phenylenebis[(4-fluorophenyl)methanone] (9CI) (CA INDEX NAME)

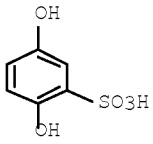
CM 1

CRN 108464-88-6
CMF C20 H12 F2 O2



CM 2

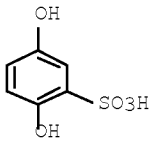
CRN 21799-87-1
CMF C6 H6 O5 S . K



RN 197246-20-1 HCAPLUS
CN Benzenesulfonic acid, 2,5-dihydroxy-, monopotassium salt, polymer with 1,4-benzenediol and bis(4-fluorophenyl)methanone (9CI) (CA INDEX NAME)

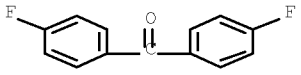
CM 1

CRN 21799-87-1
CMF C6 H6 O5 S . K



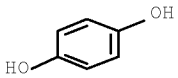
CM 2

CRN 345-92-6
CMF C13 H8 F2 O



CM 3

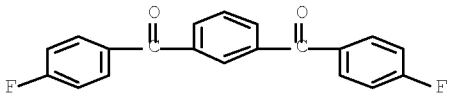
CRN 123-31-9
CMF C6 H6 O2



RN 197246-21-2 HCAPLUS
CN Benzenesulfonic acid, 2,5-dihydroxy-, monopotassium salt, polymer with 1,4-benzenediol and 1,3-phenylenebis[(4-fluorophenyl)methanone] (9CI) (CA INDEX NAME)

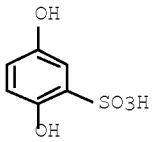
CM 1

CRN 108464-88-6
CMF C20 H12 F2 O2



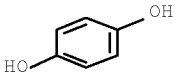
CM 2

CRN 21799-87-1
CMF C6 H6 O5 S . K



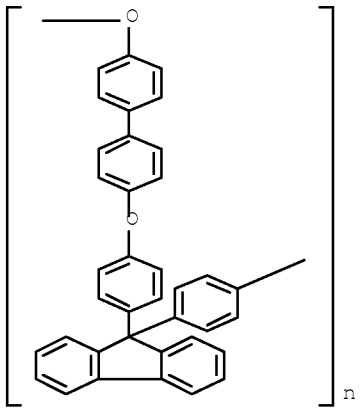
CM 3

CRN 123-31-9
CMF C6 H6 O2



CC 37-3 (Plastics Manufacture and Processing)
Section cross-reference(s): 35
ST polyarylene polyether polyketone sulfo pendent prepn; nonlinear optical chromophore arom polyether polyketone
IT 197246-12-1P, 4,4'-Difluorodiphenyl ketone-hydroquinone 2-potassium sulfone copolymer 197246-13-2P 197246-15-4P, 1,3-Bis(4-fluorobenzoyl)benzene-hydroquinone 2-potassium sulfone copolymer 197246-16-5P, 1,3-Bis(4-fluorobenzoyl)benzene-hydroquinone 2-potassium sulfone copolymer, sru 197246-20-1P, 4,4'-Difluorodiphenyl ketone-hydroquinone-hydroquinone 2-potassium sulfone copolymer 197246-21-2P, 1,3-Bis(4-fluorobenzoyl)benzene-hydroquinone-hydroquinone 2-potassium sulfone copolymer
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(intermediate; synthesis, properties and potential applications of sulfo-pendent poly(arylene ether ketones))
IT 197246-12-1DP, 4,4'-Difluorodiphenyl ketone-hydroquinone 2-potassium sulfone copolymer, acidified 197246-14-3P, 4,4'-Difluorodiphenyl ketone-hydroquinone 2-potassium sulfone copolymer, acidified sru 197246-15-4DP, 1,3-Bis(4-fluorobenzoyl)benzene-hydroquinone 2-potassium sulfone copolymer, acidified 197246-18-7P, 1,3-Bis(4-fluorobenzoyl)benzene-hydroquinone 2-potassium sulfone copolymer, acidified sru 197246-20-1DP, 4,4'-Difluorodiphenyl ketone-hydroquinone-hydroquinone 2-potassium sulfone copolymer, acidified 197246-21-2DP, 1,3-Bis(4-fluorobenzoyl)benzene-hydroquinone-hydroquinone 2-potassium sulfone copolymer, acidified
RL: POF (Polymer in formulation); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(synthesis, properties and potential applications of sulfo-pendent poly(arylene ether ketones))
REFERENCE COUNT: 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L73 ANSWER 22 OF 35 HCAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 1997:621197 HCAPLUS Full-text
DOCUMENT NUMBER: 127:339789
ORIGINAL REFERENCE NO.: 127:66571a,66574a
TITLE: Poly(arylene ethers) as low dielectric constant materials for ULSI [ultra large-scale integration] interconnect applications
AUTHOR(S): Vrtis, Raymond N.; Heap, Kelly A.; Burgoyne, William F.; Robeson, Lloyd M.
CORPORATE SOURCE: Schumacher, Carlsbad, CA, 92009, USA
SOURCE: Materials Research Society Symposium Proceedings (1997), 443(Low-Dielectric Constant Materials II), 171-176
CODEN: MRSPDH; ISSN: 0272-9172
PUBLISHER: Materials Research Society
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 29 Sep 1997
AB Poly(arylene ethers) are low-dielec.-constant organic spin on materials. PAE-2, which is a non-fluorinated poly(arylene ether), exhibited a dielec. constant <3.0, thermal stability >425°, as well as excellent adhesion to Si, SiO2, and Al. These were the major attributes which makes it a very attractive candidate for integration as an interlevel or inter-metal dielec. material (ILD). In addition, PAE-2 can successfully fill small feature sizes with good planarity. Material properties including dielec. constant, thermal stability, moisture absorption, and mech. anal. were discussed.
IT 197923-27-6, PAE 2
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(poly(arylene ethers) as low-dielec.-constant materials for ULSI interconnect applications)
RN 197923-27-6 HCAPLUS
CN Poly(oxy[1,1'-biphenyl]-4,4'-diyloxy-1,4-phenylene-9H-fluoren-9-ylidene-1,4-phenylene) (CA INDEX NAME)



CC 76-3 (Electric Phenomena)
Section cross-reference(s): 36, 38
IT Polyethers, properties
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(aromatic, coating; poly(arylene ethers) as low-dielec.-constant materials for ULSI interconnect applications)
IT 197923-27-6, PAE 2
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(poly(arylene ethers) as low-dielec.-constant materials for ULSI interconnect applications)

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

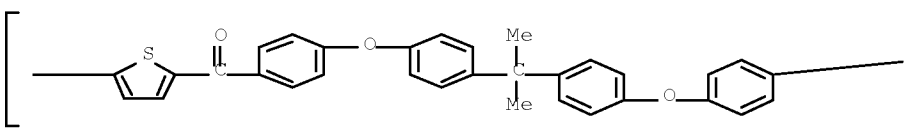
L73 ANSWER 23 OF 35 HCAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 1994:299586 HCAPLUS Full-text
DOCUMENT NUMBER: 120:299586
ORIGINAL REFERENCE NO.: 120:52811a,52814a
TITLE: Thiophene-based polymers
INVENTOR(S): Samulski, Edward T.; DeSimone, Joseph M.
PATENT ASSIGNEE(S): University of North Carolina, Chapel Hill, USA
SOURCE: U.S., 16 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5266677	A	19931130	US 1992-888921 <--	19920527
US 5354836	A	19941011	US 1993-116000 <--	19930902
US 5420224	A	19950530	US 1994-212345 <--	19940311

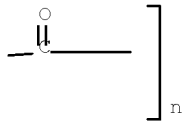
PRIORITY APPLN. INFO.: US 1992-888921 A3 19920527
US 1993-116000 A3 19930902 <--

ED Entered STN: 11 Jun 1994
AB Poly(arylene ether)ketones, polyamides, and poly(benzoxazoles) that contain thiophene rings within the aromatic polymer backbone are disclosed, along with fibers, films, and other articles manufactured therefrom. Thus, heating 0.005 mol p-phenylenediamine with 0.005 mol 2,5-thiophene diacid and 0.01 mol tri-Ph phosphate in a mixture containing 50 mL NMP, 10 mL pyridine, 3 g CaCl2, and 1 g LiCl at 115 ° under N for 2.5 h gave a polymer having inherent viscosity (0.5 g/dL in concentrate H2SO4, 25°) 2.05 dL/g, which exhibited thermal and thermooxidative stability comparable to that of poly(p-phenylene terephthalamide).
IT 136974-67-9P
RL: PREP (Preparation)
(preparation of, heat-resistant)
RN 136974-67-9 HCAPLUS
CN Poly[2,5-thiophenediylcarbonyl-1,4-phenyleneoxy-1,4-phenylene(1-methylethylidene)-1,4-phenyleneoxy-1,4-phenylenecarbonyl] (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



IC ICM C08G075-00
ICS C08G073-10; C08G069-00
INCL 528310000
CC 35-5 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 40, 75
IT Polyketones
RL: PREP (Preparation)
(polyether-, aromatic, thiophene ring-containing, preparation of)
IT Polyethers, preparation
RL: PREP (Preparation)
(polyketone-, aromatic, thiophene ring-containing, preparation of)
IT 136974-67-9P 136999-92-3P 142320-79-4P 142320-80-7P
RL: PREP (Preparation)
(preparation of, heat-resistant)
IT 136653-88-8P 146736-28-9P
RL: PREP (Preparation)
(preparation of, liquid crystals, for ultra-high strength fibers)
REFERENCE COUNT: 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L73 ANSWER 24 OF 35 HCAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 1993:450633 HCAPLUS Full-text
DOCUMENT NUMBER: 119:50633
ORIGINAL REFERENCE NO.: 119:9201a,9204a
TITLE: Thermoplastic resin compositions with reduced elution of ions
INVENTOR(S): Kojima, Eiji
PATENT ASSIGNEE(S): Sekisui Chemical Co. Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

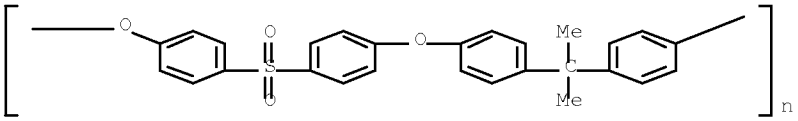
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 04348163	A	19921203	JP 1991-121242	1991 0527
			<--	
PRIORITY APPLN. INFO.:			JP 1991-121242	1991 0527
			<--	

ED Entered STN: 07 Aug 1993

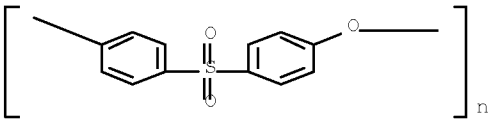
AB The title compns., suitable for use in contact with ultrahigh-purity water, comprise thermoplastic resins and water-insol. chelating agents with m.p. ≥100° selected from methylenedicarboxylic acid disalicyloylhydrazide, N,N'-bis[3-(3,5-di-tert-butyl-4-hydroxyphenyl)propionyl]hydrazine, and N,N'-di-2-naphthyl-p-phenylenediamine. The thermoplastic resins may be fluoropolymers, polythiophenylenes, polyether-polyketones, PEEK, or amorphous resins with glass transition temperature ≥100°. Thus, a blend of 100 parts Neoflon PFA AP-210 (fluoropolymer) and 2 parts Mark CDA 6 was injection-molded at 350° to give a 1-mm plate, which was washed successively with Triclene, MeOH, and ultrahigh -purity water, and immersed in ultrahigh-purity water with elec. conductivity 0.5 μS/cm in a Teflon bottle at 80° for 7 days. The water showed elec. conductivity 16.04 μS/cm, vs. 15.5 μS/cm for blank.

IT 25135-51-7, Udel P 1700 25667-42-9, Victrex PES 4800G 25839-81-0, Radel A 100 27380-27-4, Victrex PEK 220P 31694-16-3, Victrex PEEK 450G 61128-24-3, Ultem 1000
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(moldings, containing chelating agents, with reduced ion elution, for use in contact with ultrahigh-purity water)

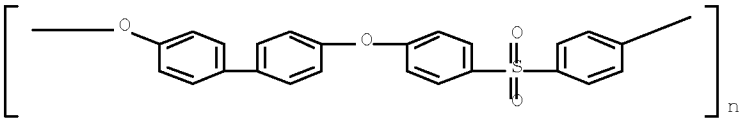
RN 25135-51-7 HCAPLUS
CN Poly[oxy-1,4-phenylenesulfonyl-1,4-phenyleneoxy-1,4-phenylene(1-methylethylidene)-1,4-phenylene] (CA INDEX NAME)



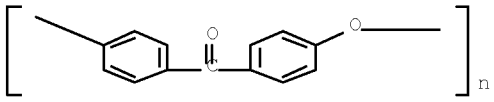
RN 25667-42-9 HCAPLUS
CN Poly(oxy-1,4-phenylenesulfonyl-1,4-phenylene) (CA INDEX NAME)



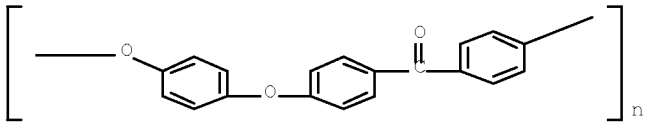
RN 25839-81-0 HCAPLUS
CN Poly(oxy[1,1'-biphenyl]-4,4'-diyloxy-1,4-phenylenesulfonyl-1,4-phenylene) (CA INDEX NAME)



RN 27380-27-4 HCAPLUS
CN Poly(oxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)

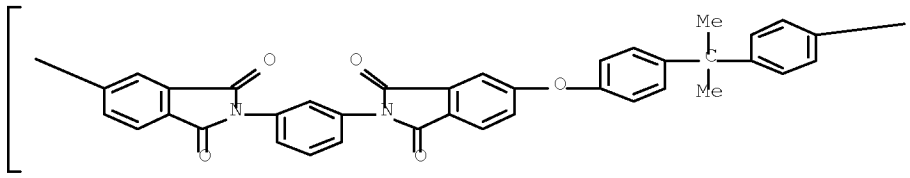


RN 31694-16-3 HCAPLUS
CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)

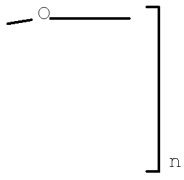


RN 61128-24-3 HCAPLUS
CN Poly[(1,3-dihydro-1,3-dioxo-2H-isoindole-5,2-diyl)-1,3-phenylene(1,3-dihydro-1,3-dioxo-2H-isoindole-2,5-diyl)oxy-1,4-phenylene(1-methylethylidene)-1,4-phenyleneoxy] (CA INDEX NAME)

PAGE 1-A



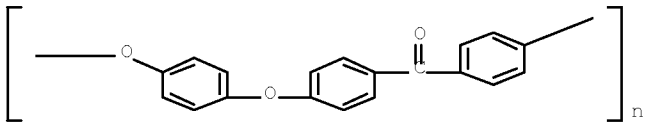
PAGE 1-B



IC ICM C08L101-00
ICS C08K005-00; C08K005-13; C08K005-17; C08K005-24; C08K005-25; C08K005-3472
CC 37-6 (Plastics Manufacture and Processing)
ST thermoplastic molding ion elution redn; chelate thermoplastic ion elution redn; fluoropolymer chelate ion elution redn; polythiophenylene chelate ion elution redn; polyetherpolyketone chelate ion elution redn; amorphous polymer ion elution redn
IT Polymers, uses
RL: USES (Uses)
(amorphous, moldings, containing chelating agents, with reduced

ion elution, for use in contact with ultrahigh
-purity water)
IT Fluoropolymers
Polysulfones, uses
Polythiophenylenes
RL: PEP (Physical, engineering or chemical process); PROC
(Process)
(moldings, containing chelating agents, with reduced ion
elution, for use in contact with ultrahigh-purity
water)
IT Chelating agents
(thermoplastic moldings containing, with reduced ion
elution, for use in contact with ultrahigh-purity
water)
IT Polyimides, uses
Polyketones
Polysulfones, uses
RL: PEP (Physical, engineering or chemical process); PROC
(Process)
(polyether-, moldings, containing chelating agents, with reduced
ion elution, for use in contact with ultrahigh
-purity water)
IT Polyethers, uses
RL: PEP (Physical, engineering or chemical process); PROC
(Process)
(polyimide-, moldings, containing chelating agents, with reduced
ion elution, for use in contact with ultrahigh
-purity water)
IT Polyethers, uses
RL: PEP (Physical, engineering or chemical process); PROC
(Process)
(polyketone-, moldings, containing chelating agents, with reduced
ion elution, for use in contact with ultrahigh
-purity water)
IT Polyethers, uses
RL: PEP (Physical, engineering or chemical process); PROC
(Process)
(polysulfone-, moldings, containing chelating agents, with reduced
ion elution, for use in contact with ultrahigh
-purity water)
IT Plastics, molded
RL: PEP (Physical, engineering or chemical process); PROC
(Process)
(thermo-, moldings, containing chelating agents, with reduced
ion elution, for use in contact with ultrahigh
-purity water)
IT 9002-83-9, Chlorotrifluoroethylene polymer 24937-79-9,
Vinylidene fluoride polymer 25038-71-5,
Ethylene-tetrafluoroethylene copolymer 25067-11-2,
Hexafluoropropylene-tetrafluoroethylene copolymer
25135-51-7, Udel P 1700 25667-42-9, Victrex PES
4800G 25839-81-0, Radel A 100 27380-27-4,
Victrex PEK 220P 31694-16-3, Victrex PEEK 450G
61128-24-3, Ultem 1000 103812-94-8, Neoflon PFA AP-210
148709-21-1, Fortron KSP-T 300
RL: PEP (Physical, engineering or chemical process); PROC
(Process)
(moldings, containing chelating agents, with reduced ion
elution, for use in contact with ultrahigh-purity
water)
IT 93-46-9, Nocrac White 32687-78-8, Irganox MD 1024 36411-52-6,
Mark CDA 1 63245-38-5, Mark CDA 6
RL: USES (Uses)
(thermoplastic moldings containing, with reduced ion
elution, for use in contact with ultrahigh-purity
water)

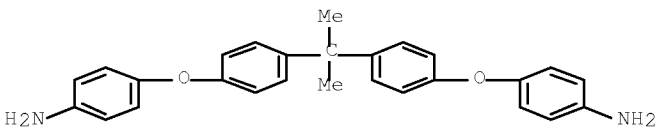
L73 ANSWER 25 OF 35 HCAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 1993:235053 HCAPLUS Full-text
DOCUMENT NUMBER: 118:235053
ORIGINAL REFERENCE NO.: 118:40729a,40732a
TITLE: Modification of high temperature and high performance polymers for implantation
AUTHOR(S): Wang, Yongqiang; Mohite, S. S.; Bridwell, L. B.; Giedd, R. E.; Sofield, C. J.
CORPORATE SOURCE: Cent. Sci. Res., Southwest Missouri State Univ., Springfield, MO, 65804, USA
SOURCE: Journal of Materials Research (1993), 8(2), 388-402
CODEN: JMREEE; ISSN: 0884-2914
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 12 Jun 1993
AB Several polymers with high temperature and high performance properties were modified by ion implantation. Ions of As and Xe with energies of 50 keV and 180 keV were implanted in the dose range 1015-1017 ions/cm2. Elec. conductivities of these originally insulating polymers were greatly enhanced after the ion implantation. Structural and compositional changes that accompanied these elec. enhancements were observed using IR and Raman spectroscopy, SEM, Rutherford backscattering spectroscopy, and elastic recoil detection anal. High-resolution data revealed a 2-component conductivity that depended on both 1-dimensional and 3-dimensional variable range hopping (VRH). For lightly damaged samples (e.g., 1015 ions/cm2) the 1-dimensional VRH was dominant, whereas for highly damaged samples (e.g., 1017 ions/cm2) the 3-dimensional VRH dominated.
IT 31694-16-3, PEEK 85339-93-1 146572-75-0
146786-94-9
RL: PRP (Properties)
(ion implantation in, elec. conductivity enhancements and structural changes in relation to)
RN 31694-16-3 HCAPLUS
CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)



RN 85339-93-1 HCAPLUS
CN 1H-Isoindole-5-carboxylic acid, 2-(4-carboxyphenyl)-2,3-dihydro-1,3-dioxo-, polymer with 4,4'-[(1-methylethylidene)bis(4,1-phenyleneoxy)]bis[benzenamine] (9CI) (CA INDEX NAME)

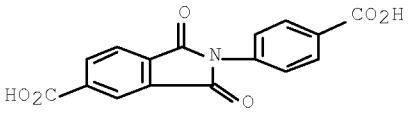
CM 1

CRN 13080-86-9
CMF C27 H26 N2 O2



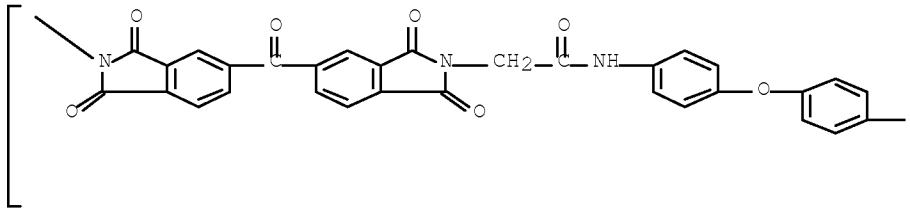
CM 2

CRN 7702-03-6
CMF C16 H9 N O6

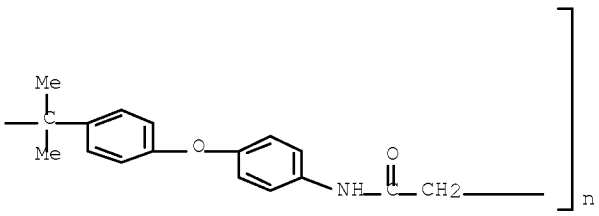


RN 146572-75-0 HCAPLUS
CN Poly[(1,3-dihydro-1,3-dioxo-2H-isoindole-2,5-diyl)carbonyl(1,3-dihydro-1,3-dioxo-2H-isoindole-5,2-diyl)(2-oxo-1,2-ethanediyl)imino-1,4-phenyleneoxy-1,4-phenylene(1-methylethylidene)-1,4-phenyleneoxy-1,4-phenyleneimino(1-oxo-1,2-ethanediyl)] (9CI) (CA INDEX NAME)

PAGE 1-A



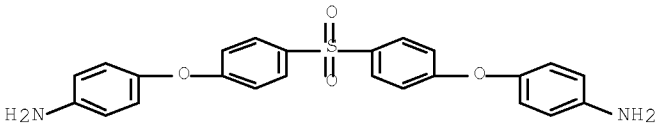
PAGE 1-B



RN 146786-94-9 HCAPLUS
CN 1H-Isoindole-5-carboxylic acid, 2-(4-carboxyphenyl)-2,3-dihydro-1,3-dioxo-, polymer with 4,4'-[sulfonylbis(4,1-phenyleneoxy)]bis[benzenamine] (9CI) (CA INDEX NAME)

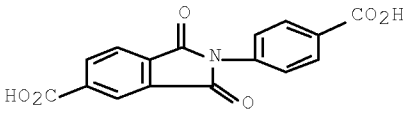
CM 1

CRN 13080-89-2
CMF C24 H20 N2 O4 S



CM 2

CRN 7702-03-6
CMF C16 H9 N O6



CC 37-5 (Plastics Manufacture and Processing)
ST ion implantation elec cond polymer
IT Polyimides, properties
RL: PRP (Properties)
(polyamide-polyether-, aromatic, ion implantation in, elec. conductivity enhancements and structural changes in relation to)
IT Polysulfones, properties
RL: PRP (Properties)
(polyamide-polyether-polyimide-, aromatic, ion implantation in, elec. conductivity enhancements and structural changes in relation to)
IT Polyimides, properties
RL: PRP (Properties)
(polyamide-polyether-polysulfone-, aromatic, ion implantation in, elec. conductivity enhancements and structural changes in relation to)
IT Polyamides, properties
RL: PRP (Properties)
(polyether-polyimide-, aromatic, ion implantation in, elec. conductivity enhancements and structural changes in relation to)
IT Polyamides, properties
RL: PRP (Properties)
(polyether-polyimide-polysulfone-, aromatic, ion implantation in, elec. conductivity enhancements and structural changes in relation to)
IT 25667-42-9 31694-16-3, PEEK 85339-93-1
129334-33-4 146572-74-9 146572-75-0
146786-94-9 146786-95-0
RL: PRP (Properties)
(ion implantation in, elec. conductivity enhancements and structural changes in relation to)

L73 ANSWER 26 OF 35 HCAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 1992:652516 HCAPLUS Full-text
DOCUMENT NUMBER: 117:252516
ORIGINAL REFERENCE NO.: 117:43723a,43726a
TITLE: Thermoplastic resin compositions with low ion elution

INVENTOR(S): Kojima, Yoshiji
PATENT ASSIGNEE(S): Sekisui Chemical Co. Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 04110352	A	19920410	JP 1990-230342	19900830

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PRIORITY APPLN. INFO.: JP 1990-230342 19900830

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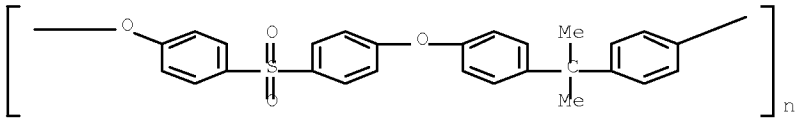
ED Entered STN: 26 Dec 1992

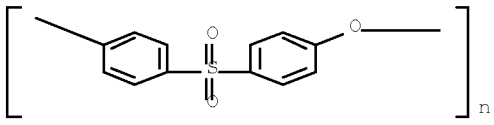
AB The title compns. especially useful in storage and transportation of ultrahigh-purity water comprise an amorphous thermoplastic resin (glass temperature ≥100°) which contains an inorg. OH-type anion exchanger and/or an inorg. H-type cation exchanger. Mixing polysulfone (Udel P1700, glass temperature 190°) 100, Zr phosphate 1, and Zr oxide hydrate 1 part and melt kneading at 360° gave a 1-mm resin plate, which was sequentially washed with triclene, MeOH, and ultrapure water. The plate after soaking 7 days at 80° in ultrapure water resulted in water with elec. conductivity 15.7 μS/cm, vs 22.0 without the ion exchangers.

IT 25135-51-7 25667-42-9 25839-81-0,
Radel A 100 61128-24-3, Ultem 1000
RL: USES (Uses)
(compns., containing H-type and OH-type ion exchangers,
for storage and transportation of ultrapure water)

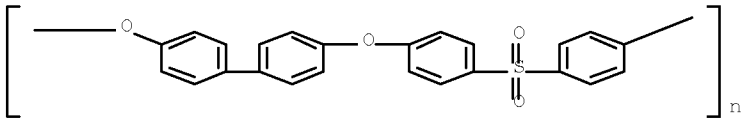
RN 25135-51-7 HCAPLUS
CN Poly[oxy-1,4-phenylenesulfonyl-1,4-phenyleneoxy-1,4-phenylene(1-methylethylidene)-1,4-phenylene] (CA INDEX NAME)



RN 25667-42-9 HCAPLUS
CN Poly(oxy-1,4-phenylenesulfonyl-1,4-phenylene) (CA INDEX NAME)



RN 25839-81-0 HCAPLUS
CN Poly(oxy[1,1'-biphenyl]-4,4'-diyloxy-1,4-phenylenesulfonyl-1,4-phenylene) (CA INDEX NAME)



RN 61128-24-3 HCAPLUS
CN Poly[(1,3-dihydro-1,3-dioxo-2H-isoindole-5,2-diyl)-1,3-phenylene(1,3-dihydro-1,3-dioxo-2H-isoindole-2,5-diyl)oxy-1,4-phenylene(1-methylethylidene)-1,4-phenyleneoxy] (CA INDEX NAME)

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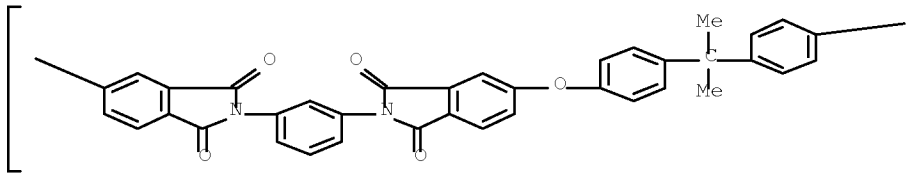
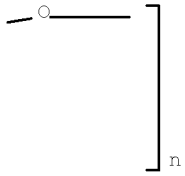


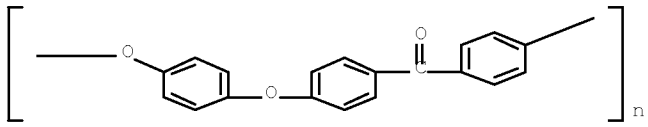
PAGE 1-B



IC ICM C08L101-00
ICS C08K003-22; C08K003-24; C08K003-32; C08L079-08; C08L081-06
CC 37-6 (Plastics Manufacture and Processing)
Section cross-reference(s): 61
ST thermoplastic resin low ion elution; water ultrapure storage transportation resin; polysulfone ion exchanger ultrapure water; zirconium oxide polysulfone resin ion
IT Cation exchangers
(inorg., H-type, thermoplastic resins containing, for storage and transportation of ultrapure water)
IT Anion exchangers
(inorg., OH-type, thermoplastic resins containing, for storage and transportation of ultrapure water)
IT Polysulfones, uses
RL: USES (Uses)
(aromatic, compns., containing H-type and OH-type ion exchangers, for storage and transportation of ultrapure water)
IT Polyimides, uses
Polysulfones, uses
RL: USES (Uses)
(polyether-, compns., containing H-type and OH-type ion exchangers, for storage and transportation of ultrapure water)
IT Polyethers, uses
RL: USES (Uses)
(polyimide-, compns., containing H-type and OH-type ion

exchangers, for storage and transportation of ultrapure water)
IT Polyethers, uses
RL: USES (Uses)
(polysulfone-, compns., containing H-type and OH-type ion exchangers, for storage and transportation of ultrapure water)
IT 25135-51-7 25667-42-9 25839-81-0, Radel A 100 61128-24-3, Ultem 1000
RL: USES (Uses)
(compns., containing H-type and OH-type ion exchangers, for storage and transportation of ultrapure water)
IT 7732-18-5, Water, properties
RL: PRP (Properties)
(ultrapure, storage and transportation of, low ion -elution thermoplastic resins for)

L73 ANSWER 27 OF 35 HCAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 1992:512951 HCAPLUS Full-text
DOCUMENT NUMBER: 117:112951
ORIGINAL REFERENCE NO.: 117:19711a,19714a
TITLE: Process development and characterization of ultrahigh-modulus, drapable graphite/thermoplastic composites for space applications
AUTHOR(S): Blair, Christopher; Jensen, Gary A.
CORPORATE SOURCE: Lockheed Missiles and Space Co., Sunnyvale, CA, 94088, USA
SOURCE: International SAMPE Symposium and Exhibition (1992), 37(Mater. Work. You 21st Century), 115-27
CODEN: ISSEEG; ISSN: 0891-0138
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 20 Sep 1992
AB Composites of ultrahigh-modulus graphite fiber with PEEK or Vectran polyester were prepared for use in laminates for spacecraft. Laminates could be made by layup methods similar to those used for epoxy composites. The laminates have high stiffness, high dimensional stability, and low water absorption.
IT 31694-16-3P, PEEK
RL: SPN (Synthetic preparation); PREP (Preparation)
(ultrahigh-modulus graphite fiber composites, preparation, processing, and properties of)
RN 31694-16-3 HCAPLUS
CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)



CC 38-3 (Plastics Fabrication and Uses)
Section cross-reference(s): 37
ST PEEK graphite composite laminate; polyester graphite composite laminate; ultrahigh modulus graphite composite spacecraft
IT Adsorption
(of water, by ultrahigh-modulus graphite fiber-polymer composites, dimensional stability in relation to)
IT Space vehicles
(ultrahigh-modulus graphite fiber composites for)
IT Polyesters, miscellaneous

RL: SPN (Synthetic preparation); PREP (Preparation)
(ultrahigh-modulus graphite fiber composites, preparation, processing, and properties of)

IT Polyketones
RL: SPN (Synthetic preparation); PREP (Preparation)
(polyether-, aromatic, ultrahigh-modulus graphite fiber composites, preparation, processing, and properties of)

IT Polyethers, miscellaneous
RL: SPN (Synthetic preparation); PREP (Preparation)
(polyketone-, aromatic, ultrahigh-modulus graphite fiber composites, preparation, processing, and properties of)

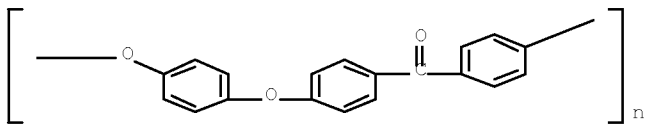
IT 7732-18-5, Water, properties
RL: PRP (Properties)
(absorption of, by ultrahigh-modulus graphite fiber-polymer composites)

IT 31694-16-3P, PEEK 81843-52-9P, Vectran
RL: SPN (Synthetic preparation); PREP (Preparation)
(ultrahigh-modulus graphite fiber composites, preparation, processing, and properties of)

L73 ANSWER 28 OF 35 HCAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 1992:256216 HCAPLUS Full-text
DOCUMENT NUMBER: 116:256216
ORIGINAL REFERENCE NO.: 116:43465a,43468a
TITLE: Ion beam modification of polymers
AUTHOR(S): Sofield, C. J.; Sugden, S.; Bedell, C. J.; Graves, P. R.; Bridwell, L. B.
CORPORATE SOURCE: Harwell Lab., AEA Technol., Didcot/Oxon., OX11 0RA, UK
SOURCE: Nuclear Instruments & Methods in Physics Research, Section B: Beam Interactions with Materials and Atoms (1992), B67(1-4), 432-7
CODEN: NIMBEU; ISSN: 0168-583X
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 27 Jun 1992
AB Ion beam-modification of PEEK leads to the production of a damaged graphite layer on the surface, which increases the elec. conductivity of the polymer. The structure of this carbonaceous layer is studied using a Raman microprobe. The highest energy ions used had sufficient range so that the damaged layer could be sectioned at a shallow angle and Raman spectra obtained at varying depths along the ion implant range. Two kinds of carbonaceous material, diamondlike and graphitic C, are formed depending on the deposition energy of the damaging ion. This is discussed with reference to a track formation model, and an energy threshold for graphitization is derived.

IT 31694-16-3, PEEK
RL: PRP (Properties)
(ion beam-modification of surface of, structure of carbonaceous layer formed by, elec. conductivity in relation to)

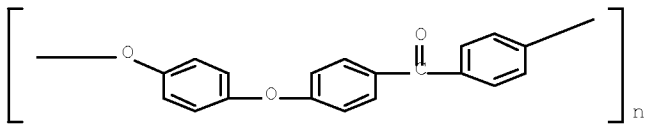
RN 31694-16-3 HCAPLUS
CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)



CC 35-8 (Chemistry of Synthetic High Polymers)

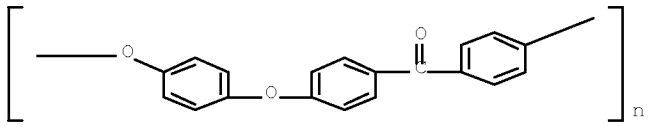
Section cross-reference(s): 36, 38, 76
ST PEEK radiochem modification elec cond; ion beam modification PEEK cond; graphitization PEEK surface elec cond; surface structure PEEK ion beam; arom polyether polyketone radiochem modification
IT Graphitization
(of PEEK surface, by ion beams, elec. conductivity in relation to)
IT Electric conductivity and conduction
(of PEEK, ion beam modification effect on)
IT Polyketones
RL: PRP (Properties)
(polyether-, aromatic, ion beam-modification of surface of, structure of carbonaceous layer formed by, elec. conductivity in relation to)
IT Polyethers, properties
RL: PRP (Properties)
(polyketone-, aromatic, ion beam-modification of surface of, structure of carbonaceous layer formed by, elec. conductivity in relation to)
IT 31694-16-3, PEEK
RL: PRP (Properties)
(ion beam-modification of surface of, structure of carbonaceous layer formed by, elec. conductivity in relation to)

L73 ANSWER 29 OF 35 HCAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 1992:84846 HCAPLUS Full-text
DOCUMENT NUMBER: 116:84846
ORIGINAL REFERENCE NO.: 116:14463a,14466a
TITLE: Elastic anisotropy in unidirectional fiber reinforced composites
AUTHOR(S): Dyer, S. R. A.; Lord, D.; Hutchinson, I. J.; Ward, I. M.; Duckett, R. A.
CORPORATE SOURCE: Univ. Leeds, Leeds, LS2 9JT, UK
SOURCE: Journal of Physics D: Applied Physics (1992), 25(1), 66-73
CODEN: JPAPBE; ISSN: 0022-3727
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 06 Mar 1992
AB A theory is presented to calculate bounds on the elastic consts. for unidirectional fiber-reinforced composites, where the fibers and matrix both show transverse isotropy. This, and a more intuitive theory due to Brody and Ward are tested using new comprehensive measurements for the elastic consts. of a range of unidirectional composites using the ultrasonic immersion technique. These composites are based on epoxy resin reinforced either by glass fibers or with ultrahigh modulus polyethylene fibers and PEEK reinforced with carbon fibers (APC2). Agreement between exptl. data and the theor. bounds is very satisfactory considering the present uncertainties in some of the fiber elastic consts.
IT 31694-16-3, APC-2
RL: PRP (Properties)
(undirectional carbon fiber composites, elastic anisotropy in APC-2)
RN 31694-16-3 HCAPLUS
CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)



CC 37-5 (Plastics Manufacture and Processing)
IT Polyketones
RL: PRP (Properties)
(polyether-, aromatic, undirectional carbon fiber composites, elastic anisotropy in APC-2)
IT Polyethers, properties
RL: PRP (Properties)
(polyketone-, aromatic, undirectional carbon fiber composites, elastic anisotropy in APC-2)
IT 31694-16-3, APC-2
RL: PRP (Properties)
(undirectional carbon fiber composites, elastic anisotropy in APC-2)

L73 ANSWER 30 OF 35 HCAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 1991:634035 HCAPLUS Full-text
DOCUMENT NUMBER: 115:234035
ORIGINAL REFERENCE NO.: 115:39897a,39900a
TITLE: The evaluation of ultrahigh-modulus pitch-based carbon fiber composites fabricated from PEEK powder impregnated unifabric
AUTHOR(S): Hartness, J. Timothy
CORPORATE SOURCE: BASF Struct. Mater., Inc., Charlotte, NC, 28273, USA
SOURCE: International SAMPE Symposium and Exhibition (1991), 36(2), 1617-30
CODEN: ISSEEG; ISSN: 0891-0138
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 29 Nov 1991
AB The development of prepregs using ultrahigh-modulus carbon fiber and PEEK powder that demonstrate improved properties, handling, and cost over other approaches was described. The fabricated prepregs showed improved mech., morphol., and outgassing properties in comparison with those obtained from epoxy resins. The ability of composites to handle fibers in excess of 689 GPa without excessive fiber damage was successfully demonstrated.
IT 31694-16-3, PEEK
RL: USES (Uses)
(ultrahigh-modulus pitch-based carbon fiber prepregs, fabrication and properties of)
RN 31694-16-3 HCAPLUS
CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)



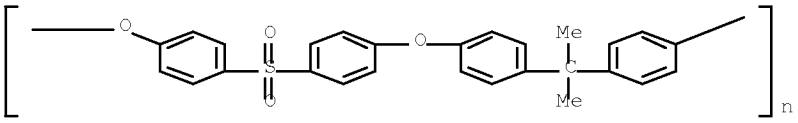
CC 38-3 (Plastics Fabrication and Uses)
Section cross-reference(s): 37
IT Molding of plastics and rubbers
Polymer morphology
(of ultrahigh-modulus pitch-based carbon fiber-PEEK prepregs, properties in relation to)
IT Volatile substances
(outgases, release of, from ultrahigh-modulus pitch-based carbon fiber-PEEK prepregs)
IT Carbon fibers, uses and miscellaneous
RL: USES (Uses)

(pitch-based, PEEK reinforced with ultrahigh-modulus, prepregs from, fabrication and properties of)
IT Polyketones
RL: USES (Uses)
(polyether-, aromatic, ultrahigh -modulus pitch-based carbon fiber prepregs, fabrication and properties of)
IT Polyethers, uses and miscellaneous
RL: USES (Uses)
(polyketone-, aromatic, ultrahigh-modulus pitch-based carbon fiber prepregs, fabrication and properties of)
IT 7440-44-0
RL: USES (Uses)
(carbon fibers, pitch-based, PEEK reinforced with ultrahigh-modulus, prepregs from, fabrication and properties of)
IT 31694-16-3, PEEK
RL: USES (Uses)
(ultrahigh-modulus pitch-based carbon fiber prepregs, fabrication and properties of)

L73 ANSWER 31 OF 35 HCAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 1991:145057 HCAPLUS Full-text
DOCUMENT NUMBER: 114:145057
ORIGINAL REFERENCE NO.: 114:24611a,24614a
TITLE: Electrically conductive pastes
INVENTOR(S): Hanabusa, Kazuto; Minamizawa, Hiroshi; Morinaga, Takashi; Nomura, Yoshihiro; Fukushima, Toshiaki
PATENT ASSIGNEE(S): Hitachi Chemical Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 16 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

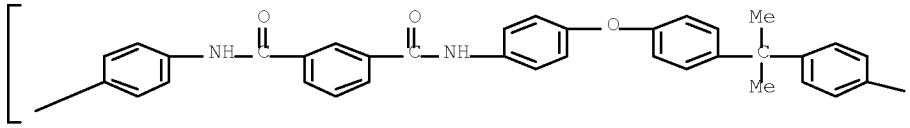
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 02245071	A	19900928	JP 1989-66551	1989 0317
			<--	
PRIORITY APPLN. INFO.:			JP 1989-66551	1989 0317
			<--	

ED Entered STN: 19 Apr 1991
AB The title pastes contain Ag, heat-resistant thermoplastics 100, solvents 300-5500, and elec. conductive films and ion-absorbing metal oxides 350-3500 parts. Thus, a paste containing 4,4'-[isopropylidenebis(p-phenyleneoxy)]dianiline- isophthaloyl chloride copolymer 100, diglyme 2500, Ag flakes 2750, and granular Al2O3 150 parts had volume resistivity 5 + 10-5 Ω-cm and Ag ion migration 0.54 ppm.
IT 25135-51-7 26912-97-0 32034-67-6
62239-17-2 63100-70-9 118037-60-8
118066-28-7 118086-91-2 118106-14-2
118175-54-5 130262-45-2 132852-77-8
132878-46-7 132878-47-8
RL: USES (Uses)
(heat-resistant, in elec. conductive pastes)
RN 25135-51-7 HCAPLUS
CN Poly[oxy-1,4-phenylenesulfonyl-1,4-phenyleneoxy-1,4-phenylene(1-methylethylidene)-1,4-phenylene] (CA INDEX NAME)

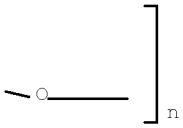


RN 26912-97-0 HCAPLUS
CN Poly[oxy-1,4-phenylene(1-methylethylidene)-1,4-phenyleneoxy-1,4-phenyleneiminocarbonyl-1,3-phenylenecarbonylimino-1,4-phenylene] (CA INDEX NAME)

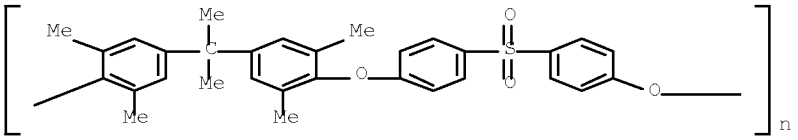
PAGE 1-A



PAGE 1-B



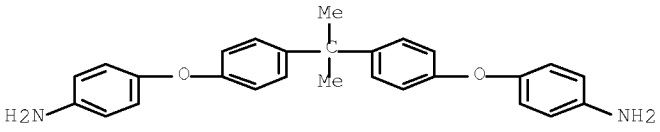
RN 32034-67-6 HCAPLUS
CN Poly[oxy-1,4-phenylenesulfonyl-1,4-phenyleneoxy(2,6-dimethyl-1,4-phenylene)(1-methylethylidene)(3,5-dimethyl-1,4-phenylene)] (CA INDEX NAME)



RN 62239-17-2 HCAPLUS
CN 1,3-Benzenedicarbonyl dichloride, polymer with 4,4'-[(1-methylethylidene)bis(4,1-phenyleneoxy)]bis[benzenamine] (CA INDEX NAME)

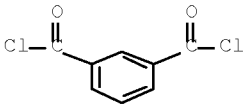
CM 1

CRN 13080-86-9
CMF C27 H26 N2 O2



CM 2

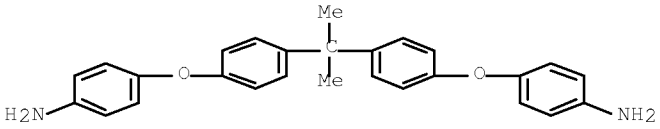
CRN 99-63-8
CMF C8 H4 Cl2 O2



RN 63100-70-9 HCAPLUS
CN 5-Isobenzofurancarbonyl chloride, 1,3-dihydro-1,3-dioxo-, polymer with 4,4'-[(1-methylethylidene)bis(4,1-phenyleneoxy)]bis[benzenamine] (CA INDEX NAME)

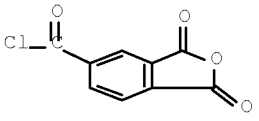
CM 1

CRN 13080-86-9
CMF C27 H26 N2 O2



CM 2

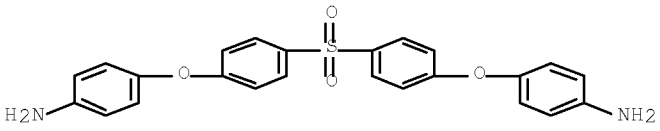
CRN 1204-28-0
CMF C9 H3 Cl O4



RN 118037-60-8 HCAPLUS
CN 5-Isobenzofurancarboxylic acid, 1,3-dihydro-1,3-dioxo-, (1-methylethylidene)di-4,1-phenylene ester, polymer with 4,4'-[sulfonylbis(4,1-phenyleneoxy)]bis[benzenamine] (9CI) (CA INDEX NAME)

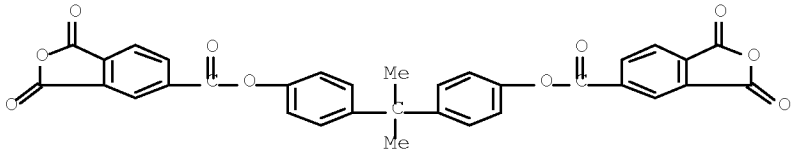
CM 1

CRN 13080-89-2
CMF C24 H20 N2 O4 S



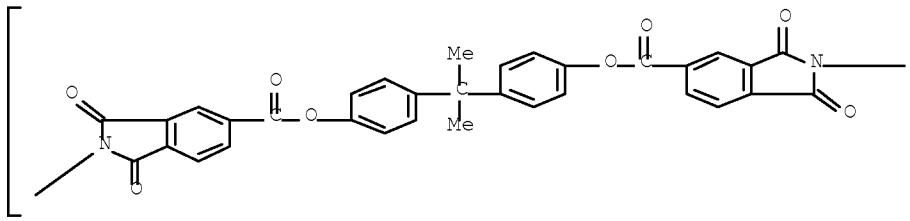
CM 2

CRN 2770-50-5
CMF C33 H20 O10

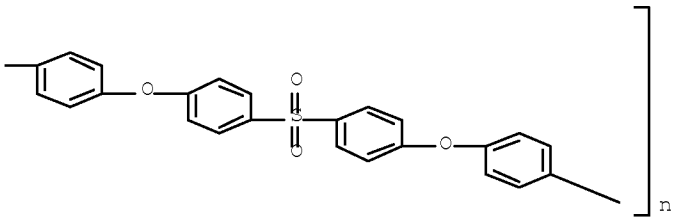


RN 118066-28-7 HCAPLUS
CN Poly[(1,3-dihydro-1,3-dioxo-2H-isoindole-2,5-diyl)carbonyloxy-1,4-phenylene(1-methylethylidene)-1,4-phenyleneoxycarbonyl(1,3-dihydro-1,3-dioxo-2H-isoindole-5,2-diyl)-1,4-phenyleneoxy-1,4-phenylenesulfonyl-1,4-phenyleneoxy-1,4-phenylene] (9CI) (CA INDEX NAME)

PAGE 1-A



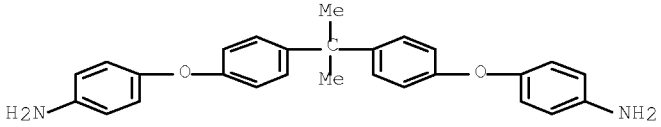
PAGE 1-B



RN 118086-91-2 HCAPLUS
CN 5-Isobenzofurancarboxylic acid, 1,3-dihydro-1,3-dioxo-, (1-methylethylidene)di-4,1-phenylene ester, polymer with 4,4'-[(1-methylethylidene)bis(4,1-phenyleneoxy)]bis[benzenamine] (9CI) (CA INDEX NAME)

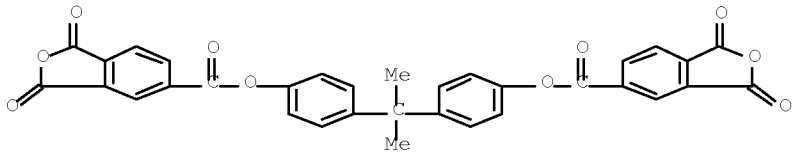
CM 1

CRN 13080-86-9
CMF C27 H26 N2 O2



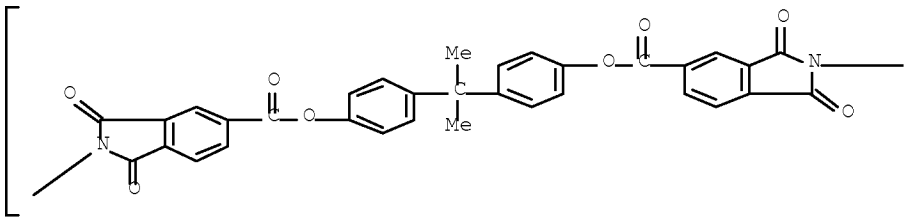
CM 2

CRN 2770-50-5
CMF C33 H20 O10



RN 118106-14-2 HCAPLUS
CN Poly[(1,3-dihydro-1,3-dioxo-2H-isoindole-2,5-diyl)carbonyloxy-1,4-phenylene(1-methylethylidene)-1,4-phenyleneoxycarbonyl(1,3-dihydro-1,3-dioxo-2H-isoindole-5,2-diyl)-1,4-phenyleneoxy-1,4-phenylene(1-methylethylidene)-1,4-phenyleneoxy-1,4-phenylene] (CA INDEX NAME)

PAGE 1-A



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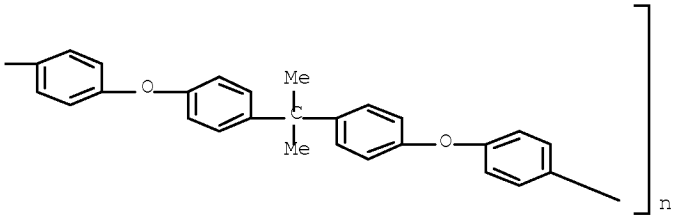
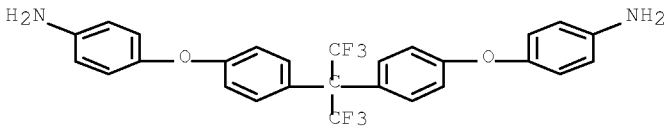


RN 118175-54-5 HCAPLUS
CN 4,7-Methanoisobenzofuran-1,3-dione, 5,5'-sulfonylbis[hexahydro-, polymer with 4,4'-[[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis(4,1-phenyleneoxy)]bis[benzenamine] (9CI) (CA INDEX NAME)

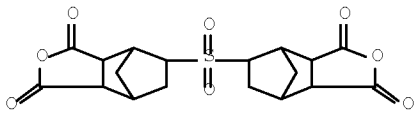
CM 1

CRN 69563-88-8
CMF C27 H20 F6 N2 O2



CM 2

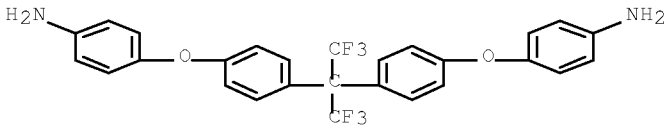
CRN 35243-37-9
CMF C18 H18 O8 S



RN 130262-45-2 HCAPLUS
CN 1,3-Benzenedicarbonyl dichloride, polymer with 1,4-benzenedicarbonyl dichloride and 4,4'-[[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis(4,1-phenyleneoxy)]bis[benzenamine] (9CI) (CA INDEX NAME)

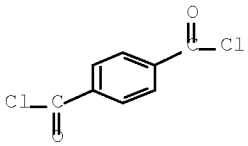
CM 1

CRN 69563-88-8
CMF C27 H20 F6 N2 O2



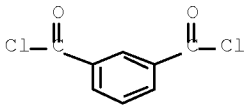
CM 2

CRN 100-20-9
CMF C8 H4 Cl2 O2



CM 3

CRN 99-63-8
CMF C8 H4 Cl2 O2



RN 132852-77-8 HCAPLUS
CN Poly[(octahydro-1,3-dioxo-4,7-methano-2H-isoindole-2,5-diyl)sulfonyl(octahydro-1,3-dioxo-4,7-methano-2H-isoindole-5,2-diyl)-1,4-phenyleneoxy-1,4-phenylene[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]-1,4-phenyleneoxy-1,4-phenylene] (9CI) (CA INDEX NAME)

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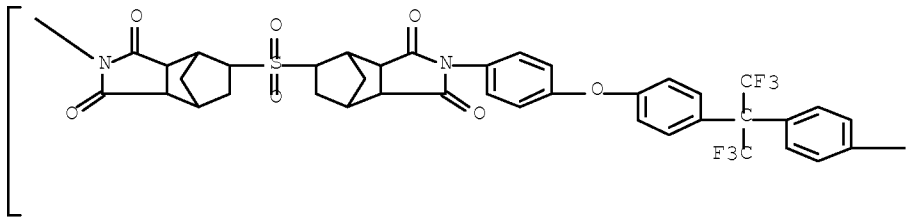
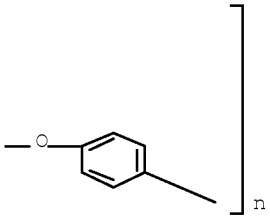


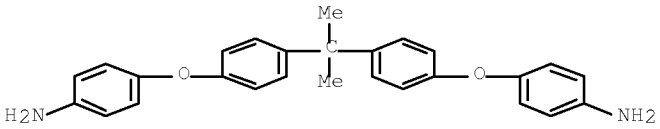
PAGE 1-B



RN 132878-46-7 HCAPLUS
CN 1,3-Benzenedicarbonyl dichloride, polymer with 1,3-dihydro-1,3-dioxo-5-isobenzofurancarbonyl chloride and 4,4'-[(1-methylethylidene)bis(4,1-phenyleneoxy)]bis[benzenamine] (9CI) (CA INDEX NAME)

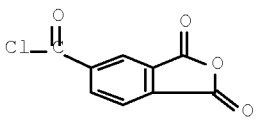
CM 1

CRN 13080-86-9
CMF C27 H26 N2 O2



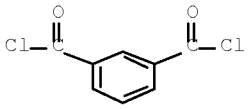
CM 2

CRN 1204-28-0
CMF C9 H3 Cl O4



CM 3

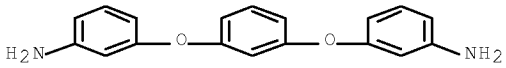
CRN 99-63-8
CMF C8 H4 Cl2 O2



RN 132878-47-8 HCAPLUS
CN 5-Isobenzofurancarbonyl chloride, 1,3-dihydro-1,3-dioxo-, polymer with 3,3'-[1,3-phenylenebis(oxy)]bis[benzenamine] (CA INDEX NAME)

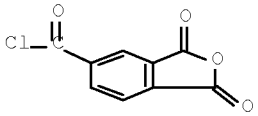
CM 1

CRN 10526-07-5
CMF C18 H16 N2 O2



CM 2

CRN 1204-28-0
CMF C9 H3 Cl O4



IC ICM C09D005-24
ICS C08K003-08; C08K003-22; C08L067-02; C08L071-12; C08L077-00; C08L079-08
CC 38-3 (Plastics Fabrication and Uses)
Section cross-reference(s): 76
IT Polyimides, uses and miscellaneous
RL: USES (Uses)
(polyamide-polyether-, aromatic, heat-resistant, in elec. conductive pastes)
IT Polyimides, uses and miscellaneous
RL: USES (Uses)
(polyester-polyether-, aromatic, heat-resistant, in elec. conductive pastes)
IT Polyamides, uses and miscellaneous
Polysulfones, uses and miscellaneous
RL: USES (Uses)

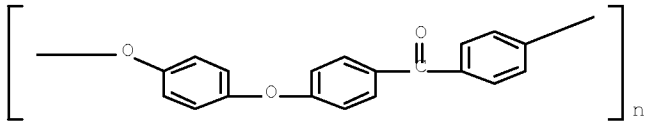
(polyether-, aromatic, heat-resistant, in elec. conductive pastes)

IT Polyamides, uses and miscellaneous
Polyesters, uses and miscellaneous
Polysulfones, uses and miscellaneous
RL: USES (Uses)
(polyether-polyimide-, aromatic, heat-resistant, in elec. conductive pastes)

IT Polyimides, uses and miscellaneous
RL: USES (Uses)
(polyether-polysulfone-, aromatic, heat-resistant, in elec. conductive pastes)

IT 25135-51-7 26912-97-0 29658-28-4
32034-67-6 40907-90-2 51161-04-7, Bisphenol A-dichlorodiphenyl sulfone copolymer 52224-75-6
62239-17-2 63100-70-9 67016-92-6 107028-50-2
118037-60-8 118066-28-7 118086-91-2
118106-14-2 118175-54-5 118215-94-4
118215-95-5 130262-45-2 132852-77-8
132878-46-7 132878-47-8 132878-48-9
132878-49-0 132902-82-0
RL: USES (Uses)
(heat-resistant, in elec. conductive pastes)

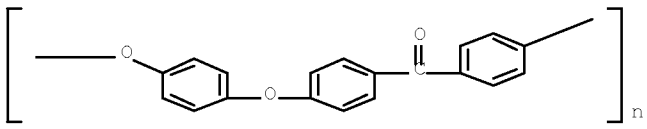
L73 ANSWER 32 OF 35 HCAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 1990:498387 HCAPLUS Full-text
DOCUMENT NUMBER: 113:98387
ORIGINAL REFERENCE NO.: 113:16637a,16640a
TITLE: Morphology of polymer films and single molecules
AUTHOR(S): Howell, Barbara; Reneker, Darrell H.
CORPORATE SOURCE: Natl. Inst. Stand. Technol., Gaithersburg, MD, 20899, USA
SOURCE: Journal of Applied Polymer Science (1990), 40(9-10), 1663-82
CODEN: JAPNAB; ISSN: 0021-8995
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 16 Sep 1990
AB Seven polymeric substances were examined by high-resolution TEM. Features on the scale of the diameter of single mol. chains were observed Polymers examined include linear low-d. polyethylene (mol.weight 52,000), linear ultrahigh mol.-weight polyethylene (.apprx.5,000,000), poly(cis-1,4-butadiene), poly(γ-benzyl-L-glutamate), PEEK, deuterated Me methacrylate-styrene block copolymer, and a polydiacetylene, poly(1,12-bis(butoxycarbonylmethylurethanyl)-5,8-dodecadiyne). A variety of methods were used to prepare dispersed single mols. and very thin films, some of which had regions with strands containing only a few mols. Staining with RuO4 revealed structures near the surface of the films that were reproducible and characteristic of each polymer.
IT 31694-16-3, PEEK
RL: PRP (Properties)
(morphol. of films and single mol. chains of)
RN 31694-16-3 HCAPLUS
CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)



CC 36-2 (Physical Properties of Synthetic High Polymers)

IT Polyketones
RL: PRP (Properties)
(polyether-, aromatic, morphol. of films and single mol. chains of)
IT Polyethers, properties
RL: PRP (Properties)
(polyketone-, aromatic, morphol. of films and single mol. chains of)
IT 9002-88-4, Polyethylene
RL: PRP (Properties)
(low-d., morphol. of single mols. and films of low- and ultrahigh-mol.-weight)
IT 25014-27-1 25038-53-3 31694-16-3, PEEK 68777-93-5
76135-61-0, Poly[1,12-di(butoxycarbonylmethylurethanenyl)-5,8-dodecadiyne)] 108354-66-1
RL: PRP (Properties)
(morphol. of films and single mol. chains of)

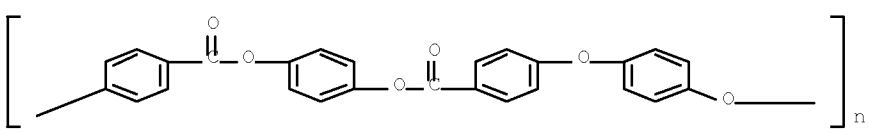
L73 ANSWER 33 OF 35 HCAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 1990:180328 HCAPLUS Full-text
DOCUMENT NUMBER: 112:180328
ORIGINAL REFERENCE NO.: 112:30519a,30522a
TITLE: Conductivity enhancement of poly(ether ether ketone) by ion implantation
AUTHOR(S): Bedell, C. J.; Sofield, C. J.; Bridwell, L. B.; Brown, I. M.
CORPORATE SOURCE: Harwell Lab., UKAEA, Didcot/Oxfordshire, UK
SOURCE: Journal of Applied Physics (1990), 67(4), 1736-9
CODEN: JAPIAU; ISSN: 0021-8979
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 12 May 1990
AB Amorphous PEEK films were implanted with a variety of ions (He, N, F, As, Xe, and I) in the energy range 50 keV to 32 MeV. At the lower end of this range, the dependence of the elec. conductivity of the PEEK on the dose and ion species was explained in terms of a simple model of electronic and nuclear excitation effects. Implantations in the MeV energy range yielded a surface layer on the PEEK with a high conductivity [≤2.5 (Ω cm)-1] and a moderate hardness (320 knoop, 1-g load). Evidence for diffusion of iodine implanted at the highest energy was found. The role of the uniform iodine concentration throughout the implanted layer in the prevalent conduction mechanism is not known at present.
IT 31694-16-3, PEEK
RL: PROC (Process)
(elec. conductivity enhancement of, by ion implantation)
RN 31694-16-3 HCAPLUS
CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)



CC 36-5 (Physical Properties of Synthetic High Polymers)
Section cross-reference(s): 76
ST PEEK ion implantation elec cond; helium implantation PEEK elec cond; nitrogen implantation PEEK elec cond; fluorine implantation PEEK elec cond; arsenic implantation PEEK elec cond; xenon implantation PEEK elec cond; iodine implantation PEEK elec cond; conduction mechanism ion

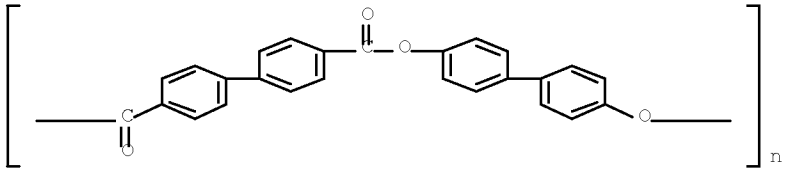
implanted PEEK
IT Polyketones
RL: PROC (Process)
(polyether-, aromatic, elec. conductivity enhancement of, by ion implantation)
IT Polyethers, properties
RL: PROC (Process)
(polyketone-, aromatic, elec. conductivity enhancement of, by ion implantation)
IT 31694-16-3, PEEK
RL: PROC (Process)
(elec. conductivity enhancement of, by ion implantation)

L73 ANSWER 34 OF 35 HCAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 1989:58198 HCAPLUS Full-text
DOCUMENT NUMBER: 110:58198
ORIGINAL REFERENCE NO.: 110:9651a,9654a
TITLE: Synthesis of aromatic poly (ether ketones) in trifluoromethanesulfonic acid
AUTHOR(S): Colquhoun, Howard M.; Lewis, David F.
CORPORATE SOURCE: Res. Technol. Dep., ICI Chem. Polym. Ltd., Runcorn, WA7 4QE, UK
SOURCE: Polymer (1988), 29(10), 1902-8
CODEN: POLMAG; ISSN: 0032-3861
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 17 Feb 1989
AB The superacid solvent trifluoromethanesulfonic acid (H0 = -14.6) promotes rapid polycondensation of certain aromatic dicarboxylic acids with aromatic diethers at ambient temperature, to give linear polyketones of high mol. weight Reactivity studies on a range of monomers and on model compds. indicate that the polymerization is inhibited by electron -withdrawing substituents on the same aromatic ring as the carboxylic acid function, and, in the ether component, by the transmission of electron-withdrawing effects between aromatic rings via the ether bridge. Monoacylation of di-Ph ether thus leads to very significant deactivation of the second, unsubstituted ring, so that this ether is not a satisfactory monomer for the present polyketone synthesis, whereas 1,4-diphenoxybenzene and 4,4''-diphenoxybiphenyl both undergo rapid diacylation, and hence polycondensation, at the terminal aromatic rings. Polymerizable one-component systems, designed for maximum self-reactivity, include (4-phenoxy)phenoxybenzoic acid and the previously unrecorded monomer 4-(4'-phenoxyphenyl)benzoic acid. Polymer characterization by 13C NMR and differential scanning calorimetry indicates that condensations proceed with very high paraselectivity, giving crystalline polyketones with m.ps. in the range 320-470°.
IT 50726-06-2P 62287-78-9P 88049-74-5P
88049-76-7P 88049-78-9P 88049-79-0P
88049-82-5P 88049-83-6P 88049-84-7P
118363-06-7P 118364-12-8P 118364-13-9P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of, in trifluoromethanesulfonic acid)
RN 50726-06-2 HCAPLUS
CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyloxy-1,4-phenyleneoxycarbonyl-1,4-phenylene) (9CI) (CA INDEX NAME)



RN 62287-78-9 HCAPLUS
CN Poly(oxy[1,1'-biphenyl]-4,4'-diyloxycarbonyl[1,1'-biphenyl]-4,4'-

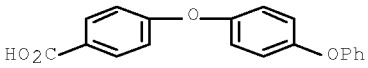
diylcarbonyl) (9CI) (CA INDEX NAME)



RN 88049-74-5 HCAPLUS
CN Benzoic acid, 4-(4-phenoxyphenoxy)-, homopolymer (CA INDEX NAME)

CM 1

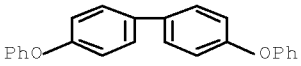
CRN 88049-73-4
CMF C19 H14 O4



RN 88049-76-7 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-dicarboxylic acid, polymer with 4,4'-diphenoxy-1,1'-biphenyl (9CI) (CA INDEX NAME)

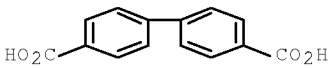
CM 1

CRN 2519-16-6
CMF C24 H18 O2



CM 2

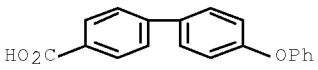
CRN 787-70-2
CMF C14 H10 O4



RN 88049-78-9 HCAPLUS
CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-phenoxy-, polymer with 4-(4-phenoxyphenoxy)benzoic acid (9CI) (CA INDEX NAME)

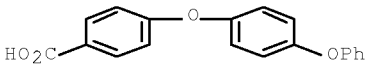
CM 1

CRN 88049-77-8
CMF C19 H14 O3



CM 2

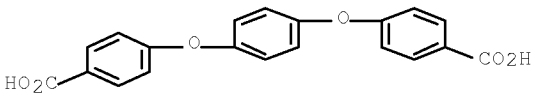
CRN 88049-73-4
CMF C19 H14 O4



RN 88049-79-0 HCAPLUS
CN Benzoic acid, 4,4'-[1,4-phenylenebis(oxy)]bis-, polymer with 4,4'-diphenoxy-1,1'-biphenyl (9CI) (CA INDEX NAME)

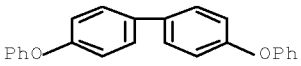
CM 1

CRN 13282-09-2
CMF C20 H14 O6



CM 2

CRN 2519-16-6
CMF C24 H18 O2

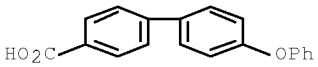


RN 88049-82-5 HCAPLUS
CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-phenoxy-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 88049-77-8

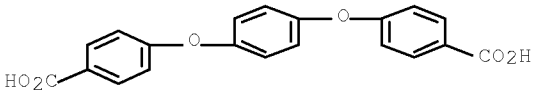
CMF C19 H14 O3



RN 88049-83-6 HCAPLUS
CN Benzoic acid, 4,4'-[1,4-phenylenebis(oxy)]bis-, polymer with 1,4-diphenoxybenzene (9CI) (CA INDEX NAME)

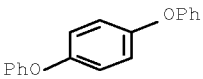
CM 1

CRN 13282-09-2
CMF C20 H14 O6



CM 2

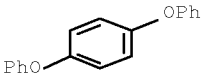
CRN 3061-36-7
CMF C18 H14 O2



RN 88049-84-7 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-dicarboxylic acid, polymer with 1,4-diphenoxybenzene (9CI) (CA INDEX NAME)

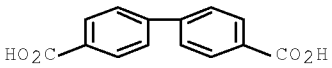
CM 1

CRN 3061-36-7
CMF C18 H14 O2



CM 2

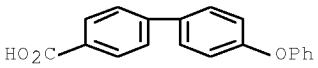
CRN 787-70-2
CMF C14 H10 O4



RN 118363-06-7 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-dicarboxylic acid, polymer with 4,4'-diphenoxy-1,1'-biphenyl and 4'-phenoxy[1,1'-biphenyl]-4-carboxylic acid (9CI) (CA INDEX NAME)

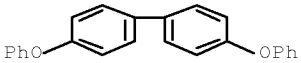
CM 1

CRN 88049-77-8
CMF C19 H14 O3



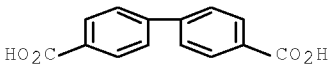
CM 2

CRN 2519-16-6
CMF C24 H18 O2

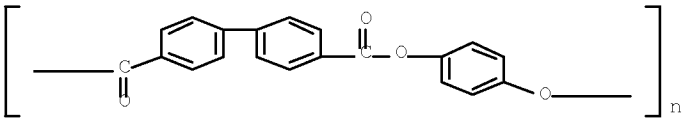


CM 3

CRN 787-70-2
CMF C14 H10 O4

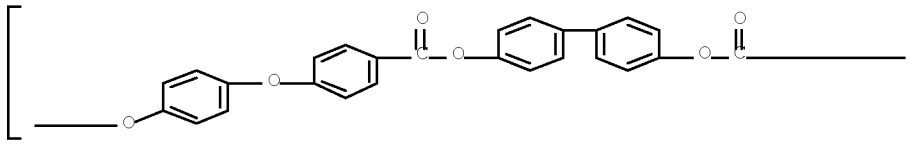


RN 118364-12-8 HCAPLUS
CN Poly(oxy-1,4-phenyleneoxycarbonyl[1,1'-biphenyl]-4,4'-diylcarbonyl) (9CI) (CA INDEX NAME)

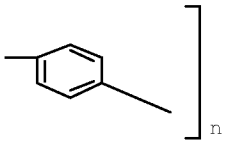


RN 118364-13-9 HCAPLUS
CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyloxy[1,1'-biphenyl]-4,4'-diyloxycarbonyl-1,4-phenylene) (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



CC 35-5 (Chemistry of Synthetic High Polymers)
IT Polyethers, preparation
RL: SPN (Synthetic preparation); PREP (Preparation)
(polyketone-, preparation of, from aromatic dicarboxylic acids and aromatic diethers in trifluoromethanesulfonic acid)
IT 50726-06-2P 62287-78-9P 88049-73-4P
88049-74-5P 88049-76-7P 88049-78-9P
88049-79-0P 88049-82-5P 88049-83-6P
88049-84-7P 118363-06-7P 118364-12-8P
118364-13-9P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of, in trifluoromethanesulfonic acid)

L73 ANSWER 35 OF 35 HCAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 1968:40159 HCAPLUS Full-text
DOCUMENT NUMBER: 68:40159
ORIGINAL REFERENCE NO.: 68:7843a,7846a
TITLE: Poly(aryl ethers) by nucleophilic aromatic substitution. I. Synthesis and properties
AUTHOR(S): Johnson, Robert Norman; Farnham, Alford G.; Clendinning, Robert A.; Hale, Warren F.; Merriam, Charles N.
CORPORATE SOURCE: Union Carbide Corp., Bound Brook, NJ, USA
SOURCE: Journal of Polymer Science, Part A-1: Polymer Chemistry (1967), 5(9), 2375-98
CODEN: JPSPC3; ISSN: 0449-296X
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 12 May 1984

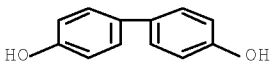
AB A series of new aromatic polyethers was prepared by solution condensation polymerization The synthesis involves the condensation of a dialkali metal salt of a dihydric phenol with an "activated" or neg. substituted aromatic dihalide in an anhydrous dipolar aprotic solvent at elevated temps. The reaction is rapid, free of side reactions, and yields polymers of excellent color. Bakelite polysulfone can be prepared in this manner by reaction of the di-Na salt of bisphenol A with 4,4'-dichlorodiphenyl sulfone in Me2SO. Only dipolar aprotic solvents are useful for conducting the polymerization Of these, Me2SO and sulfolane (tetrahydrothiophene 1,1-dioxide) are the most effective. Water or other competing nucleophiles must be absent if high mol. weight is to be obtained. Besides providing the necessary solubility, highly polar solvents are believed to be essential in providing the rapid polymerization rates observed. The rates are further found to depend on the basicity of the bisphenol salt and upon the electron-withdrawing power of the activating group in the dihalide. As is usual for this type of reaction, the difluorides are more reactive than the corresponding dichlorides. Most of the polyethers are amorphous, rigid, tough thermoplastics with high second-order transitions (Tg). Thermal stability and elec. properties are noteworthy. These and other properties are described for polysulfone, and Tg values are given for a selected list of the other polyethers.

IT 25608-64-4P 25667-42-9P 29658-26-2P
29658-27-3P 29658-28-4P 29658-30-8P
31690-56-9P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(preparation and properties of)

RN 25608-64-4 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diol, polymer with 1,1'-sulfonylbis[4-chlorobenzene] (CA INDEX NAME)

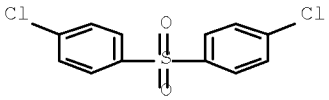
CM 1

CRN 92-88-6
CMF C12 H10 O2

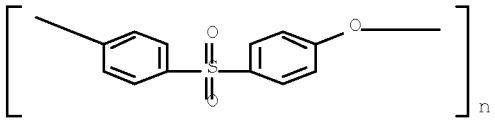


CM 2

CRN 80-07-9
CMF C12 H8 Cl2 O2 S



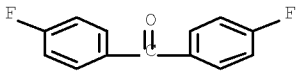
RN 25667-42-9 HCAPLUS
CN Poly(oxy-1,4-phenylenesulfonyl-1,4-phenylene) (CA INDEX NAME)



RN 29658-26-2 HCAPLUS
CN Methanone, bis(4-fluorophenyl)-, polymer with 1,4-benzenediol (CA INDEX NAME)

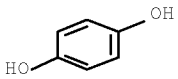
CM 1

CRN 345-92-6
CMF C13 H8 F2 O



CM 2

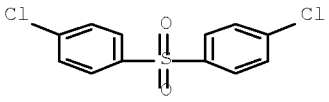
CRN 123-31-9
CMF C6 H6 O2



RN 29658-27-3 HCAPLUS
CN Phenol, 4,4'-isopropylidenebis[2-chloro-, polymer with bis(p-chlorophenyl) sulfone (8CI) (CA INDEX NAME)

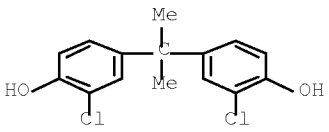
CM 1

CRN 80-07-9
CMF C12 H8 Cl2 O2 S



CM 2

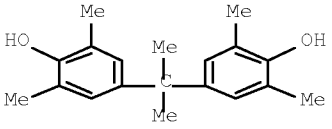
CRN 79-98-1
CMF C15 H14 Cl2 O2



RN 29658-28-4 HCAPLUS
CN Phenol, 4,4'-(1-methylethylidene)bis[2,6-dimethyl-, polymer with 1,1'-sulfonylbis[4-chlorobenzene] (CA INDEX NAME)

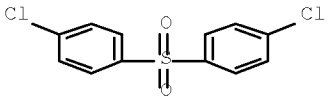
CM 1

CRN 5613-46-7
CMF C19 H24 O2



CM 2

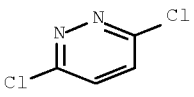
CRN 80-07-9
CMF C12 H8 Cl2 O2 S



RN 29658-30-8 HCAPLUS
CN Phenol, 4,4'-isopropylidenedi-, polymer with 3,6-dichloropyridazine (8CI) (CA INDEX NAME)

CM 1

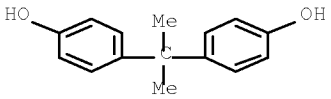
CRN 141-30-0
CMF C4 H2 Cl2 N2



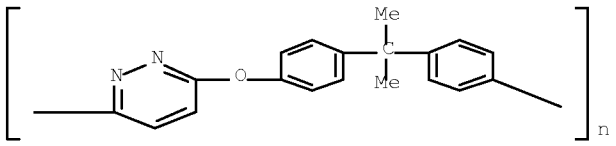
CM 2

CRN 80-05-7

CMF C15 H16 O2



RN 31690-56-9 HCAPLUS
CN Poly[3,6-pyridazinediyloxy-1,4-phenylene(1-methylethylidene)-1,4-phenylene] (9CI) (CA INDEX NAME)



CC 35 (Synthetic High Polymers)
IT 25135-51-7P 25608-64-4P 25667-42-9P
25718-33-6P 25839-81-0P 26635-20-1P 28212-68-2P
29658-26-2P 29658-27-3P 29658-28-4P
29658-29-5P 29658-30-8P 30776-33-1P
31690-56-9P 31690-57-0P 31694-03-8P 31694-04-9P
31694-05-0P 31694-06-1P 31694-07-2P 31694-09-4P
31694-10-7P 31694-11-8P 31694-12-9P 31694-13-0P
31694-15-2P 31694-16-3P 31694-17-4P 31813-50-0P
32031-01-9P 32034-67-6P 32036-58-1P 41205-96-3P
69266-28-0P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(preparation and properties of)

FULL SEARCH HISTORY

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                SEL RN

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                E SASAKI S/AU
L7              QUE SPE=ON  ABB=ON  PLU=ON  SASAKI S?/AU
L8            9 SEA SPE=ON  ABB=ON  PLU=ON  L6 AND L7
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                1295-35-8/BI OR 1633-83-6/BI OR 24938-67-8/BI OR
                25134-01-4/BI OR 342015-92-3/BI OR 366-18-7/BI OR
                392-56-3/BI OR 4263-52-9/BI OR 434-90-2/BI OR 55788-44-
                8/BI OR 583-78-8/BI OR 586397-55-9/BI OR 586397-58-2/BI
                 OR 7440-02-0/BI OR 7440-05-3/BI OR 78-67-1/BI OR
                849138-84-7/BI OR 849138-86-9/BI OR 849138-91-6/BI OR
                849138-92-7/BI OR 849138-95-0/BI OR 849138-96-1/BI OR
                850537-55-2/BI OR 850537-56-3/BI OR 857894-41-8/BI OR
                857894-42-9/BI OR 857894-43-0/BI OR 862297-84-5/BI OR
                862367-79-1/BI OR 867059-61-8/BI OR 867059-62-9/BI OR
                867059-64-1/BI OR 867059-66-3/BI OR 867059-69-6/BI OR
                867059-71-0/BI OR 867059-73-2/BI OR 867059-75-4/BI OR
                909552-02-9/BI OR 909552-03-0/BI OR 909552-04-1/BI OR
                909552-06-3/BI OR 909552-07-4/BI OR 97793-01-6/BI)
L10          47 SEA SPE=ON  ABB=ON  PLU=ON  L9 NOT L2
                D SCA
                D SCA

     FILE 'LREGISTRY' ENTERED AT 13:17:40 ON 09 JUN 2009

     FILE 'REGISTRY' ENTERED AT 13:17:56 ON 09 JUN 2009
L11          51 SEA SPE=ON  ABB=ON  PLU=ON  L9 OR L2

     FILE 'LREGISTRY' ENTERED AT 13:18:11 ON 09 JUN 2009
L12             STR L3

     FILE 'REGISTRY' ENTERED AT 13:18:59 ON 09 JUN 2009
                D QUE STAT L5
L13          50 SEA SSS SAM L3 AND L12 AND L4
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L14             STR L3

     FILE 'REGISTRY' ENTERED AT 13:21:26 ON 09 JUN 2009
L15          50 SEA SSS SAM L14 AND L4
L16          50 SEA SSS SAM L3 AND L14 AND L4
                D QUE STAT
                D QUE STAT L13
L17          50 SEA SSS SAM L3 AND L12 AND L4
                D QUE STAT
L18      288112 SEA SSS FUL L3 AND L12 AND L4
L19          29 SEA SPE=ON  ABB=ON  PLU=ON  L11 AND L18
                D SAV
                SAV L18 NGU707REG/A
                D SAV

     FILE 'LREGISTRY' ENTERED AT 13:28:37 ON 09 JUN 2009
L20             STR L3

     FILE 'REGISTRY' ENTERED AT 13:30:46 ON 09 JUN 2009
L21           0 SEA SUB=L18 SSS SAM L20
                D QUE STAT
L22           0 SEA SUB=L18 SSS SAM L20 AND L4
L23          50 SEA SUB=L18 SSS SAM L14

     FILE 'LREGISTRY' ENTERED AT 13:34:47 ON 09 JUN 2009
L24             STR L14

     FILE 'REGISTRY' ENTERED AT 13:35:22 ON 09 JUN 2009
L25          50 SEA SUB=L18 SSS SAM L24
L26       65587 SEA SUB=L18 SSS FUL L24
                SAV L26 NGU707REGA/A
                D SAV
                SAV TEMP L26 NGU707REGA/A
                D SAV

     FILE 'LREGISTRY' ENTERED AT 13:38:16 ON 09 JUN 2009
L27             STR

     FILE 'REGISTRY' ENTERED AT 13:41:23 ON 09 JUN 2009
L28           0 SEA SUB=L18 SSS SAM L27
L29           0 SEA SUB=L18 SSS FUL L27
                SAV TEMP L29 NGU707REGB/A
L30           1 SEA SPE=ON  ABB=ON  PLU=ON  L26 AND L2
                D SCA
L31           7 SEA SPE=ON  ABB=ON  PLU=ON  L26 AND L11
                D SCA
                D SCA L19

     FILE 'HCAPLUS' ENTERED AT 13:43:53 ON 09 JUN 2009
                D SCA L1
                E POLYETHERS/CT 25
                E E3+ALL
L32       68489 SEA SPE=ON  ABB=ON  PLU=ON  POLYETHERS/CT
                D SCA L1
L33         408 SEA SPE=ON  ABB=ON  PLU=ON  L31
L34       12585 SEA SPE=ON  ABB=ON  PLU=ON  L19
L35       44054 SEA SPE=ON  ABB=ON  PLU=ON  L26
L36       17946 SEA SPE=ON  ABB=ON  PLU=ON  L32 AND L35
L37       10083 SEA SPE=ON  ABB=ON  PLU=ON  L32(L)AROM?
L38        5617 SEA SPE=ON  ABB=ON  PLU=ON  L37 AND L35
L39       10789 SEA SPE=ON  ABB=ON  PLU=ON  AROM?(2A)(POLYETHER? OR
                POLY(A)ETHER?)
L40        5775 SEA SPE=ON  ABB=ON  PLU=ON  L39 AND L35
L41       48271 SEA SPE=ON  ABB=ON  PLU=ON  (ION OR CATION OR ANION)(2A
                )?CONDUCT?
L42          37 SEA SPE=ON  ABB=ON  PLU=ON  L40 AND L41
                D SCA L1
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L43         186 SEA SPE=ON  ABB=ON  PLU=ON  L35 AND L41
L44       51500 SEA SPE=ON  ABB=ON  PLU=ON  ULTRAHIGH OR ULTRA(A)HIGH
L45           1 SEA SPE=ON  ABB=ON  PLU=ON  L43 AND L44
                D KWIC
L46        1910 SEA SPE=ON  ABB=ON  PLU=ON  ULTRALARGE OR ULTRA(A)LARGE

L47          16 SEA SPE=ON  ABB=ON  PLU=ON  L40 AND (L44 OR L46)
L48           0 SEA SPE=ON  ABB=ON  PLU=ON  L43 AND L46
L49           1 SEA SPE=ON  ABB=ON  PLU=ON  L42 AND (L44 OR L46)
                D KWIC
L50        6140 SEA SPE=ON  ABB=ON  PLU=ON  L38 OR L40
L51       93478 SEA SPE=ON  ABB=ON  PLU=ON  (HIGH OR LARGE)(2A)(MW OR
                MOLECULAR WEIGHT) OR ((NUMBER(A)AVERAGE)(2A)(MW OR
                MOLECULAR)(A)(WEIGHT OR WT)) OR NAMW
L52         295 SEA SPE=ON  ABB=ON  PLU=ON  L50 AND (L44 OR L46 OR
                L51)
                D QUE
L53           1 SEA SPE=ON  ABB=ON  PLU=ON  L52 AND L41
                D KWIC
L54          52 SEA SPE=ON  ABB=ON  PLU=ON  L42 OR L45 OR (L47 OR L48
                OR L49) OR L53

     FILE 'REGISTRY' ENTERED AT 14:30:26 ON 09 JUN 2009
L55      222525 SEA SPE=ON  ABB=ON  PLU=ON  L18 NOT L26
L56      101356 SEA SPE=ON  ABB=ON  PLU=ON  L55 AND 1-3/NR
L57      121169 SEA SPE=ON  ABB=ON  PLU=ON  L55 NOT L56

     FILE 'HCAPLUS' ENTERED AT 14:31:46 ON 09 JUN 2009
L58       23146 SEA SPE=ON  ABB=ON  PLU=ON  L36 OR L39
L59       11816 SEA SPE=ON  ABB=ON  PLU=ON  L58 AND (L56 OR L57)
L60         100 SEA SPE=ON  ABB=ON  PLU=ON  L59 AND L41
L61           2 SEA SPE=ON  ABB=ON  PLU=ON  L60 AND (L44 OR L46 OR
                L51)
                D SCA
L62         531 SEA SPE=ON  ABB=ON  PLU=ON  L59 AND (L44 OR L46 OR
                L51)
L63          68 SEA SPE=ON  ABB=ON  PLU=ON  L62 AND ?CONDUCT?
L64          31 SEA SPE=ON  ABB=ON  PLU=ON  L63 AND (ION OR CATION OR
                ANION OR ELECTRON OR HOLE OR CHARGE)
L65          82 SEA SPE=ON  ABB=ON  PLU=ON  L54 OR L61 OR L64
                E "IONIC CONDUCTIVITY"/CT
                E E3+ALL
L66      359566 SEA SPE=ON  ABB=ON  PLU=ON  "IONIC CONDUCTIVITY"+MAX/CT

L67          26 SEA SPE=ON  ABB=ON  PLU=ON  L62 AND L66
                E "IONIC CONDUCTIVITY"/CT
                E "IONIC CONDUCTORS"/CT
L68      100405 SEA SPE=ON  ABB=ON  PLU=ON  "IONIC CONDUCTORS"+MAX/CT
L69          22 SEA SPE=ON  ABB=ON  PLU=ON  L62 AND L68
L70          89 SEA SPE=ON  ABB=ON  PLU=ON  L65 OR L67 OR L69
L71             QUE SPE=ON  ABB=ON  PLU=ON  PY=<2003 NOT P/DT
L72             QUE SPE=ON  ABB=ON  PLU=ON  (PY=<2003 OR PRY=<2003 OR
                AY=<2003 OR MY=<2003 OR REVIEW/DT) AND P/DT
L73          35 SEA SPE=ON  ABB=ON  PLU=ON  L70 AND (L71 OR L72)
                SAV TEMP L73 NGU707HCP/A
                D QUE STAT L73
                D L73 1-35 IBIB ED ABS HITSTR HITIND
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